Music Therapy in Special Education and Early Intervention: Research and Evidence-Based Practice

Overview

Music therapy, a well established and research based professional health discipline, utilizes music as a therapeutic stimulus to achieve non-musical treatment goals. In work with young children with special needs and special education music therapy is used as an educational related service that readily promotes learning and acquisition of skills. Music therapy is also highly efficient in early intervention settings for supporting developmental growth for both at risk and special needs infants and children.

Research in the field of music therapy highlights connections between speech and singing, rhythm and motor behavior, memory for song and memory for academic material, and an overall ability of preferred music to improve mood, attention, and behavior; this facilitates the child’s ability to learn and interact with others. Rhythmic movement is highly effective in the development of adaptive respiration patterns, muscular relaxation, and gross motor skills such as mobility, agility, balance, and coordination. The reinforcing nature of music can be utilized to motivate movements or structure exercises involved in physical rehabilitation. The pain, discomfort, and anxiety often associated with physical disabilities are relieved by participation in music therapy.

Children are more readily capable of absorbing information and skills presented in a music therapy setting because music is processed in a different area of the brain than speech and language. One of the purposes of music therapy for individuals with special needs is to provide initial assistance with the use of melodic and rhythmic strategies progressing toward a fading of musical cues to facilitate generalization and transfer of learned capabilities and skills to various learning environments.

Music therapy, as a recognized related service, is a fundamental component of assisting children with special needs to achieve the educational goals identified by their IEP team*, through direct or consultant services.

* The Individuals with Disabilities Education Act (IDEA) 20 U.S.C. §1400, provides that eligible children and youth with disabilities shall receive special education and related services. The law includes a definition of related services that the U.S. Department of Education notes is not exhaustive. In addition, in June 2010, the U.S. Department of Education issued a Questions and Answers document on Individualized Education Programs (IEPs), Evaluations, and Reevaluations. This document provides guidance representing the interpretation of the Department and clarifies the recognition of music therapy as a related service under IDEA.
Background Facts*

- Music therapy is documented and recognized in numerous places within the U.S. health care structure. The Centers for Medicare and Medicaid Services (CMS) recognizes music therapy. Music therapy is listed under the Healthcare Common Procedure Coding System (HCPCS) Code G0176 for billing Medicare in Partial Hospitalization Programs (PHP).
- Music therapy is listed on the U.S. General Services Administration (GSA) schedule under Professional and Allied Healthcare Staffing Services: 621-047 --- Counseling Related Services (Includes: Community Counselor; Marriage/Family Counselor/Therapist; Mental Health Counselor; Rehabilitation Counselor; Social Worker (BS); Social Worker (MS); Music Therapist; Art Therapist and Dance Therapist (Registered DTR)).
- Music therapy has a Procedure Code of 93.84 in the International Classification of Diseases-9th Revision Manual (ICD-9) used in reimbursement and documentation.
- Music therapists are eligible to apply for the National Provider Identifier (NPI) system for billing under taxonomy code 225A00000X, which is included in the category of “Respiratory, Developmental, Rehabilitative and Restorative Service Providers”.
- Music therapy is a related service under IDEA and can be included on IEPs if found necessary for a child to benefit from his/her special education program.
- The Joint Commission and the Commission on Accreditation of Rehabilitation Facilities (CARF) recognizes music therapists as qualified individuals who may provide services within accredited facilities.

Standardization of Practice

Using a criterion based assessment (Special Education Music Therapy Assessment Process or SEMTAP), board certified music therapists are able to determine if music therapy is necessary to assist a child in his/her education by documenting increased attention, motivation, and ability to perform IEP goals/objectives. This is decided by looking at whether or not music provides the student with a significant motivation and/or a significant assist in participating in his or her educational program. Music therapists document data from specified goals and objectives during sessions. A treatment plan is utilized and services are administered in accordance with national organization standards of practice. Selection of music and active music-making activities are individualized to coincide with the client’s needs and preferences†.

Outcomes of Music Therapy

Common outcomes of music therapy include, but are not limited to: increased attention, decreased self-stimulation, improved cognitive functioning, increased socialization, successful and safe self-expression, improved behavior, enhanced auditory processing, decreased agitation, improved receptive/expressive language, enhanced sensorimotor skills, decreased anxiety, improved comprehensive ability

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* From the American Music Therapy Association (AMTA) document: “Special Education and Early Intervention: Music Therapy Research and Evidence-Based Practice Support”
† Toolkits are accessible through AMTA and publications
Special Education

Current research for the area of special education indicates that music therapy is highly effective for fostering a capacity for flexibility, creativity, variability, and tolerance of change in children with special needs. This makes it possible for these children to balance the more structured and behaviorally driven education setting in a school classroom. Music therapy is successful in facilitating speech development, a heightened capacity for interpersonal relations, and improved emotional awareness and expression. Music therapy is also calming for children with special needs and effectively reduces levels of anxiety, sensation seeking, and depression.

1. Phonological capacity, understanding of speech, cognitive structures, action patterns, and level of intelligence improves in children with music therapy to a point that developmental age converges with biological age. Along with speech development children's ability to form and maintain relationships and prosodic abilities improved because music therapy provides a basic and supportive therapy for children with delayed speech development.


2. Anxiety is reduced in music therapy conditions compared to discussion conditions. Music therapy also has a beneficial, calming effect on heart rate in children with developmental disabilities. Music therapy provides children with developmental disabilities with psychological improvements, increased physical well-being, and mental benefits improving overall psychological state and quality of life.


3. Music therapy allows children with developmental disabilities to invent emotions. Because of children’s natural enjoyment of music, music therapy can effectively improve their ability to cope with stress. Music is helpful in all education settings and integration of musical content into literature helps children to relate and participate in activities.


4. Music therapy improves executive function and emotional adjustment and reduces levels of depression, sensation seeking, and anxiety.


5. Many SCERTS goals and objectives are addressed in music therapy interventions. Also, by the use of the SCERTS model can generate new opportunities to achieve goals and sub-goals previously unrecognized by music therapy.

Communication

**Current music therapy research in the area of communication indicates that verbal language and speech skills are effectively improved through music therapy techniques for special education populations. Music can be used as a prompt or as reinforcement to increase verbal responsiveness in children with limited verbal communication. Music therapy techniques have improved children's capacity to initiate, anticipate, and sustain participation in verbal communication as well as improving their attention to and engagement with others.**

1. Comprehension of verbally communicated information in children with special needs can be enhanced through music therapy by strengthening coherent oscillations in frontal cortical networks associated with verbal encoding.
   

2. Music can be used to help children with special needs learn to organize and structure information. Sequential verbal information is more effectively memorized and recalled when learned in a melodic and rhythmic method through music therapy.
   

3. Children with severe and multiple disabilities at different levels of communication development improved initiation, anticipation, and sustainment of participation in turn taking through music therapy treatment. They are also increasingly able to maintain attention and engagement in interpersonal interactions.


Social/Emotional

**Current research for the area of social/emotional development in children with special needs indicates that music therapy effectively improves social skills and social problem solving through the use of musically facilitated interactions and creative musical activities. Music therapy also reduces children's aggression and hostility and facilitates self-expression by applying frustration, anger, and aggression in a creative context to promote self-expression and mastery. Music induces positive affect that decreases levels of depression, stress, and anxiety. Music therapy techniques also promote increased capacity for attention and engagement with peers.**

1. Music therapy is effective in improving social competence of individuals with social deficits.

2. Music therapy is effective in facilitating positive behavioral changes in individuals with Cerebral Palsy. This research implies a transferability of these effects to music therapy practice with individuals with Autism, Dementia, Acute Brain Injury, Parkinson’s Disease, Alzheimer’s Disease, Attachment Disorder, Chronic Schizophrenia, Depression, Down’s Syndrome, and Multiple Sclerosis.


3. Compared to play contexts, music therapy increases length of sustained attention toward peers and alternation of attention from peer to peer.


4. Early intervention music therapy programs improve development of social behaviors and skills in children and infants under two years of age along with heightened success rates in language development, cognitive concepts, and motor skills.


**Sensorimotor**

*Current music therapy research for the area of sensorimotor development in special education indicates that techniques such as rhythmic auditory stimulation (RAS) and vibroacoustic therapy improve gait, balance, trajectory, kinematic stability velocity, stride length, upper extremity function, and overall physical functioning.*

1. Vibroacoustic therapy techniques in music therapy, paired with other allied health interventions, improve physical function in children with physical disabilities.


2. Rhythmic auditory stimulation (RAS) influenced gait performance in individuals with cerebral palsy. By enhancing balance, trajectory, and kinematic stability velocity and stride length can be improved without increasing cadence.


3. Rhythmic auditory stimulation (RAS) significantly improved gait and upper extremity function and is more effective than other sensory cues and various techniques in physical rehabilitation.


**Academic/Cognitive**
Current music therapy research for the area of academic/cognitive development in special education indicates the efficacy of music to improve literary skills, word recognition, prewriting skills, logo identification, print concepts, text accuracy, structuring and organization of ordered information, mathematic abilities, word decoding, word knowledge, reading comprehension, and attention by utilizing different neural pathways than language and speech.

1. Music therapy is a naturally social way to engage children of any age in developmentally appropriate learning of mathematics.

2. Music therapy improves children’s skills of word decoding, word knowledge, and reading comprehension.

3. Music therapy improves sustained attention and children’s ability to correctly answer comprehensive questions relating to information presented.

4. Music therapy effectively improves learning and memory by accessing compensatory pathways in the prefrontal cortex associated with learning and memory. Learning through music therapy has a neurophysiological advantage over traditional educational settings.