American Music Therapy Association

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Special Education: Music Therapy Research and Evidence-Based Practice Support

STATEMENT OF PURPOSE

Music therapy is a well-established professional health discipline that uses music as the therapeutic stimulus to achieve non-musical treatment goals. **In special education and settings serving persons with special needs, music therapists utilize music as an educational related service to promote learning and skill acquisition.**

Research supports connections between speech and singing, rhythm and motor behavior, memory for song and memory for academic material, and overall ability of preferred music to enhance mood, attention, and behavior to optimize the student's ability to learn and interact. Rhythmic movement helps develop gross motor skills (mobility, agility, balance, coordination) as well as respiration patterns and muscular relaxation. Because music is reinforcing, it can be used to motivate movements or structure exercises that are prescribed in physical rehabilitation. Involvement in music may provide a distraction from the pain, discomfort, and anxiety often associated with some physical disabilities.

Music is processed by a different area of the brain than speech and language; hence, a child may be able to more easily absorb information and skills presented with music. Therefore, one of the purposes of music therapy for persons with special needs is to provide the student with an initial assist using melodic and rhythmic strategies, followed by fading of musical cues to aid in generalization and transfer to other learning environments.

Recognized as a related service, music therapy serves as an integral component in helping the child with special needs attain educational goals identified by his/her IEP team,* either through direct or consultant services.

STANDARDIZATION: Music therapy sessions are documented in a treatment plan and delivered in accordance with standards of practice. Music selections and certain active music-making activities are modified for client preferences and individualized needs. Toolkits are available via AMTA and publications.

REPLICATION: Yes; has also been used with different providers and populations.

* 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.

OUTCOMES:

Increased attention	Improved behavior
Decreased self-stimulation	Enhanced auditory processing
Improved cognitive functioning	Decreased agitation
Increased socialization	Improved receptive/expressive language
Successful and safe self-expression	Enhanced sensory-motor skills

OVERVIEW OF RESEARCH

- **Music therapy clients significantly improved on the Aggression/Hostility scale of Achenbach's Teacher's Report Form, suggesting that group music therapy can facilitate self-expression and provide a channel for transforming frustration, anger, and aggression into the experience of creativity and self-mastery. Depressed youth listening to music experienced a significant decrease in stress hormone (cortisol) levels, and most adolescents shifted toward left frontal EEG activation (associated with positive affect).**

  - Field, T., Martinez, A., Nawrocki, T., Pickens, J., Fox N. A., & Schanberg, S. (1998). Music shifts frontal EEG in depressed adolescents. *Adolescence, 33*(129), 109–116.
  - Krakouer, L., Houghton, S., Douglas, G., & West, J. (2001). The efficacy of music therapy in effecting behaviour change in persons with Cerebral Palsy. *International Journal of Psychosocial Rehabilitation, 6*, 29–37.
  - Montello, L. M., & Coons, E. E. (1998). Effect of active versus passive group music therapy on preadolescents with emotional, learning, and behavioral disorders. *Journal of Music Therapy, 35*, 49–67.

- **Trends regarding evidence-based review and recommendations regarding assessment and referral criteria based on current research and clinical evidence are emerging. Music therapy is a particularly important intervention for children with special needs to engage and foster their capacity for flexibility, creativity, variability, and tolerance of change, in order to balance the more structured and behaviorally driven education required in school settings. One forthcoming clinical trial by the University of Rochester is promising in the area of music therapy for procedural support among children with CP.**

  - Sahler, O. J., et al. *Music therapy during botulinum injections*. 2002–2006. www.ClinicalTrials.gov Identifier: NCT00178217. Report forthcoming.
  - Wigram, T. (2002). Indications in music therapy. *British Journal of Music Therapy, 16*(1), 11–28.

- **An overall positive direction is noted in meta-analytic reviews of the literature on the subject of music therapy and learning among special needs children. This effect is positive in terms of an array of outcomes related to both therapeutic and specific educational goals. Variations for effect size occur within the broad category of the special education disorders and tend to reflect the idiosyncratic nature of the disorders among individuals. This is typical across allied health disciplines.**

  - Standley, J. M. (1996). A meta-analysis on the effects of music as reinforcement for education/therapy objectives. *Journal of Research in Music Education, 44*(2), 105–133.

- **Recent research explored the effect of different levels of preintentional and intentional communication development on musical interaction with children with severe and multiple disabilities. This work confirmed that children with cerebral palsy at different levels of communication development varied in their abilities to initiate, anticipate, and sustain participation in turn taking, and to maintain attention to and engagement in the interaction.**

  - Rainey Perry, M. M. (2003). Relating improvisational music therapy with severely and multiply disabled children to communication development. *Journal of Music Therapy, 40*(3), 227–246.

- **Physical functioning and the use of music therapy is frequently paired with other allied health interventions. Some newer trends include the use of vibroacoustic therapy techniques with children with physical disabilities. Findings reveal some individuals demonstrate short-term improvement; however, further study is needed.**

  - Kvam, M. H. (1997). The effect of vibroacoustic therapy. *Physiotherapy, 83*(6), 290–295.
  - Thaut, M. H., Hurt, C. P., Dragan, D., & McIntosh, G. C. (1998). Rhythmic entrainment of gait patterns in children with cerebral palsy. *Developmental Medicine and Child Neurology, 40*(78), 15.

- **Preschool children in an early intervention music therapy program show high on-task behavior during sessions and a high success rate in language development, social skills, cognitive concepts, motor skills, and music knowledge.**

  - Standley, J. M., & J. E. Hughes. (1996). Documenting developmentally appropriate objectives and benefits of a music therapy program for early intervention: A behavioral analysis. *Music Therapy Perspectives, 14*(2), 87–94.

- **Research demonstrates the efficacy of music used in the curriculum to enhance literacy skills. Musical cueing is effective to improve word recognition, logo identification, print concepts and prewriting skills of children in early intervention programs. Shared reading paired with song rehearsal of text facilitates greater text accuracy than spoken rehearsal with kindergarten students.**

  - Colwell, C. M. (1994). Therapeutic applications of music in the whole language kindergarten. *Journal of Music Therapy, 31*(4), 238–247.
  - Register, D. (2001). The effects of an early intervention music curriculum on pre-reading/ writing. *Journal of Music Therapy, 38*(3), 239–248.
  - Standley, J., & Hughes, J. (1997). Evaluation of an early intervention music curriculum for enhancing pre-reading/writing skills. *Music Therapy Perspectives, 15,* 79–86.

- **Selected verbal language and speech skills are enhanced through music activities in special education populations. Musical presentation of new vocabulary words results in an increased number of words learned and transferred in elementary school-age children. Music is effective as a prompt and reinforcer to increase verbal response in preschool-age children with limited verbal communication.**

- Braithwaite, M., & J. Sigafoos (1998). Effects of social versus musical antecedents on communication responsiveness in five children with developmental disabilities. *Journal of Music Therapy, 35*(2), 88–104.

❖ **Research supports the use of music to structure and organize information in order to increase learning and retention of number concepts. Sequential verbal information, such as telephone numbers and multiplication tables, set to melodic and rhythmic patterns are more effectively memorized and recalled than through non-music presentation.**

- Claussen, D., & Thaut, M. (1997). Music as a mnemonic device for children with learning disabilities. *Canadian Journal of Music Therapy, 5,* 55–66.
- Peterson, D. A., Thaut, M. H., Sena, K. M., O'Shea, G., & McIntosh, G. C. (2005). Music modulates neural network synchronizations in verbal learning. *Proceedings Society for Neuroscience.* 192.20.
- Thaut, M. H., Peterson, D. A., & McIntosh, G. C. (2005). Temporal entrainment of cognitive function: Musical mnemonics induce brain plasticity and oscillatory synchrony in neural networks underlying memory. *Annals of the New York Academy of Sciences, 1060,* 243–254.
- Wolfe, D., & Hom, C. (1993). Use of melodies as structural prompts for learning and retention of sequential verbal information by preschool students. *Journal of Music Therapy, 30*(2), 100–118.

❖ **Music-facilitated interactions and structured instrument playing are effective to improve social skills in school-age populations. Social problem solving skills in 5-year-old students are increased on a long-term basis through creative musical activities. Positive affect induced by music helps to improve social problem solving skills in middle school students.**

- Bryan, T., Sullivan-Burstein, K., & Mathur, S. (1998). The influence of affect on social-information processing. *Journal of Learning Disabilities, 31*(5), 418–426.
- Ulfarsdottir, L., & Erwin, P. (1999). The influence of music on social cognitive skills. *The Arts in Psychotherapy, 26*(2), 81–84.

❖ **Supporting and foundational references on the effectiveness of music therapy among children with special needs are numerous and important in demonstrating the commitment to ongoing research to serve children with disabilities.**

- Berel, M. (1993). *Music therapy and music education for the handicapped.* St. Louis, MO: MMB Music.
- Birdenshaw-Fleming, L. (1993). *Music for all.* Toronto: Gordon V. Thompson.
- Bixler, J. W. (1968). Music therapy practices for the child with cerebral palsy. In E. T. Gaston, (Ed.), *Music therapy.* New York: Macmillan.
- Herman, F. (1985). Music therapy for the young child with cerebral palsy who uses Blissymbolics. *Music Therapy, 5,* 28–36.
- Herron, C. J. (1975). Some effects of instrumental music training on cerebral palsied children. *Journal of Music Therapy, 7,* 55–58.

- Ford, S. C. (1984). Music therapy for cerebral palsied children. *Music Therapy Perspectives, 1,* 8–13.
- James, M. R. (1986). Neurophysical treatment of cerebral palsy. *Music Therapy Perspectives, 3,* 5–8.
- Palmer, M. F., & Zerbe, L. E. (1954). Control of athetotic tremors by sound control. In E. Podolsky (Ed.), *Music therapy.* New York: Philosophical Library.
- Rudenberg, M. (1982). *Music therapy for handicapped children: Orthopedically handicapped.* Washington, DC: National Association for Music Therapy.
- Scartelli, J. P. (1982). The effect of sedative music on electromyography biofeedback assisted relaxation training of spastic cerebral palsied adults. *Journal of Music Therapy. 19,* 210–218.
- Schnieder, E. H. (1968). Music therapy for the cerebral palsied. In E. T. Gaston (Ed.), *Music therapy.* New York: Macmillan.
- Thaut, M. H. (1985). The use of auditory rhythm and rhythmic speech to aid temporal muscular control in children with gross motor dysfunction. *Journal of Music Therapy, 22,* 108–128.
- Thaut, M. H., DeMartin, M., & Sanes, J. N. (2005). Brain networks for integrative rhythm formation during symmetric and asymmetric acoustically paced movements. Experimental Brain Research.
- Walmsley, R. P., Crichton, L., & Droog, D. (1981). Music as a feedback mechanism for teaching head control to severely handicapped children: A pilot study. *Developmental Medicine & Child Neurology, 23*(6), 739–746.
- Wigram, T. (1997). The effect of vibro acoustic therapy on multiply handicapped adults with high muscle tone and spasticity. In T. Wigram & C. Dileo (Eds.), *Music vibration and health.* Cherry Hill, NJ: Jeffrey Books.
- Wolfe, D. E. (1980). The effect of automated interrupted music on head positioning of cerebral palsied individuals. *Journal of Music Therapy, 17,* 184–206.