

# Emerge



## A Child's Place

Sept. 2010

Occupational Therapy  
Speech Therapy

**Chapel Hill Office**  
205 Sage Rd, Ste 203  
Chapel Hill, NC 27514  
Phone: (919) 928-0204  
Fax: (919) 928-9423

**Durham Office**  
2919 Colony Rd  
Durham, NC 27705  
Phone: (919) 489-7333  
Fax: (919) 489-0504

Serving children from  
birth to 14 years old

Using therapy to improve  
conditions such as:

Delayed Speech  
Developmental Coordination  
Disorder  
Speech Impairments  
Non-communicative Speech  
Oral/Verbal Apraxia  
Language Disorders  
Feeding Difficulties  
Autism/Asperger's/PDD  
Developmental Delay  
Cerebral Palsy  
Sensory Integration  
Disorders  
Sensory Modulation  
Disorders  
Handwriting Impairments  
Fine & Gross Motor Delays

A Private, Independent  
Provider

[www.EmergeAChildsPlace.com](http://www.EmergeAChildsPlace.com)

## Auditory Processing and Its Influence on Attention, Literacy, & Socialization



Bonnie Hacker, OT  
Founder / Director

Auditory processing disorder describes a condition wherein something adversely affects the processing or interpretation of sound. Children with perfectly normal hearing can have auditory processing disorder, but children with this challenge may not be able to understand speakers who are far away, speaking softly, or speaking in an environment with distracting noises. Children with this challenge may process auditory information more slowly, making it difficult for them to follow multi-step directions. This may also result in difficulty understanding complex language. Auditory processing challenges make it harder for children to pay attention for long periods of time, and this may be interpreted as a sign of an attention disorder. If a child shows less attention in situations that require better auditory processing but normal attention in quiet, easy listening situations, this serves as an indication that the attention deficit is secondary to another challenge. Fortunately, the neural pathways that process auditory information can be rehabilitated and improved in a permanent way.



At Emerge, one of the techniques that facilitates improvement of auditory processing is **Integrative Listening Systems (ILS)**. Integrative Listening Systems involves the integrated use of high definition musical tracks specially enhanced to stimulate the auditory processing system, modified high definition earphones, and visual-motor activities. ILS builds on the premise that, on a neural level, the vestibular, cochlear, and visual systems are integrated and interdependent. Because these systems are interdependent, ILS at Emerge rehabilitates these systems in an integrated fashion to improve the effects of therapy.

To test the effectiveness of ILS, Dr. J. Anne Calhoun, of the College of Education, University of New Mexico, divided 64 at-risk children from kindergarten to grade 2 into two groups.<sup>1</sup> They either received a 12-week intervention of ILS auditory sensory integration or in-school and after-school programs which addressed academic needs through instruction in specific academic areas. Compared to the control group, the ILS group made statistically significant gains in vocabulary and cognitive skills. **They gained two grade levels in reading fluency and comprehension.** The ILS group read at twice the rate of the control group. The test group could recall seven times more specific story-related information than their control group peers.

Further supporting the sensory integration premise and ILS, the work of Julia Harper, OTR/L found ILS associated with normalization of vestibular processing skills, visual pursuit ability (the ability of the eye to follow a target or line of text), visual motor coordination, left-right integration of auditory response at the brainstem level, auditory processing at the cortical level, auditory decoding (distinguishing words or specific sounds in degraded listening situations), and memory.<sup>2</sup> Reports from teachers in this study suggest improvements in ability to follow multi-step directions, socialization, and self-confidence. **At the beginning of Harper's 10 year study, 25% of children were taking medication for attention problems or bi-polar disorder. By the end of the study, all medications had been discontinued with no further concerns in these areas.**

In matters of attention, processing, and learning difficulties, there is no one silver bullet. When children have challenges in these areas, the process of creating lasting improvement begins with a thorough assessment that identifies specific deficits in the pyramid of learning. Once these specific deficits are identified, treatments that directly address the specific deficits can create better improvements than treatments that address the symptoms or secondary effects. Use Emerge - A Child's Place as an ally in the thorough assessment of pediatric developmental concerns.

**Please tell parents about Emerge - A Child's Place  
Believing in a Child's Potential to Flourish**

## References

1. Calhoun A. Early intervention: a longitudinal study of reading and reading related achievement of students in kindergarten through second grade enrolled in the Alpha Literacy Program. Department of Language, Literacy, and Sociocultural Studies, College of Education, University of New Mexico. 2007. (available online at: [www.integratedlistening.com/research](http://www.integratedlistening.com/research)).
2. Harper J, Weiner L. Researching combined interventions: Effectively addressing attention and auditory-processing issues in school-aged children. *ADVANCE for Occupational Therapy Practitioners*. January 4, 2010; 27-28.