

POSITION PAPER ON AUDITORY TRAINERS

The position of the California Speech-Language-Hearing Association regarding the use of FM Systems (Auditory Trainers) in the school setting is:

A licensed and/or credentialed audiologist is the only professional qualified to fit and adjust individual or group amplification systems in all educational settings.

Individual and group FM systems have been shown to offer positive advantages for language learning and academic success in educational settings. FM systems provide the user with a clear auditory signal at an improved signal to noise ratio. This overcomes the detrimental effects of a weak primary signal, due to low volume of the teacher's voice or hearing loss of the student, and high noise levels and/or poor classroom acoustics found in many schools. In order for these sophisticated systems to function to the child's best advantage, however, they must be fit appropriately. A great deal of care and consideration must be given to the child's hearing loss and personal amplification, as well as the classroom setting, management, and acoustics as fitting adjustments and use decisions are made. As well as providing excellent benefits to those children with hearing loss, FM systems have been gaining popularity for use with children with normal hearing who have been diagnosed with auditory figure-ground problems and/or attention deficit problems. Additional problems can be encountered when fitting specialized units on children with normal peripheral hearing. Other populations that can also benefit from the improved signal to noise ratio provided by an FM system include: children with unilateral hearing loss, mild hearing loss, fluctuating hearing loss, and/or a history of otitis media during infancy. (Flexer, 1999)

FM systems that are fit or used inappropriately can also have serious negative effects. Numerous research articles (Bess and Sinclair, 1985; Hawkins, 1982; Macrae, 1991) have documented permanent threshold shifts as a result of overamplification from hearing aids and/or auditory trainer units. Bess and Sinclair (1985) showed a change from 35 to 70dB HL in the speech reception threshold in one child for the ear aided with an FM unit over a three year period. The opposite ear, which was aided with a personal hearing aid, remained stable.

In addition, FM systems have shown variability and non-linearity. Model types, individual components, methods of coupling, and degree of maintenance have all been identified as contributing factors. Hawkins and Schum (1985) reported that nonlinearities may exist in the volume control of FM systems. Thibodeau and Saucedo (1991) have shown the variability of electroacoustic characteristics of components of FM systems of as much as 20dB in high frequency saturation sound pressure level and equivalent input noise across receivers, lapel microphones, and neckloops. Thibodeau (1990) has also shown that the electroacoustic response of hearing aids often change when coupled with a FM system via direct audio-input. Many other authors have identified the

variability in the response of FM systems and have implicated the need for careful fitting for optimum gain and freedom from distortion for language learning.

To obtain the maximum positive benefit from FM systems in educational settings and to eliminate the possibility of negative effects, it is paramount that a well trained professional be responsible for the fitting and adjusting of FM systems with children. This position is supported by the California Department of Education in their recently published Guidelines for Quality Standards for Programs for the Deaf and Hard of Hearing: "The audiologist's reports and services are an integral part of the educational program for a student who is deaf or hard of hearing." The guidelines also site the American Speech/Language and Hearing Association's Guidelines for Audiology Services in the Schools (1993): The audiologist is uniquely qualified to perform the following activities with children: Make recommendations about the use of hearing aids, cochlear implants, group and classroom amplification, and assistive listening devices...Ensure the proper fit and functioning of hearing aids, cochlear implants, group and classroom amplification, and assistive listening devices.

The California Speech, Language and Hearing Association supports the position that a highly qualified professional is necessary for the fitting and adjustment of FM systems in educational settings.

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