APPLICATION OF MUSICAL AUDITORY TRAINING IN NON-HEARING AID USERS

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INTRODUCTION

Patients with complaints of speech understanding in noise may benefit from auditory training because neural plasticity is a key factor in the improvement obtained from stimulation and auditory training. Behavioral improvements observed after the training are not related with modification of peripheral system but rather with the central auditory system. Therefore, auditory training may improve the performance of hearing in patients with auditory processing disorders. Clinical practice and the literature have shown that the performance of musical auditory training (TAM) directed to the auditory skills of temporal processing and selective attention in hearing aids users lead to improvement of these skills in this population. Will this kind of auditory training present a benefit for non-hearing aid users?

OBJECTIVE

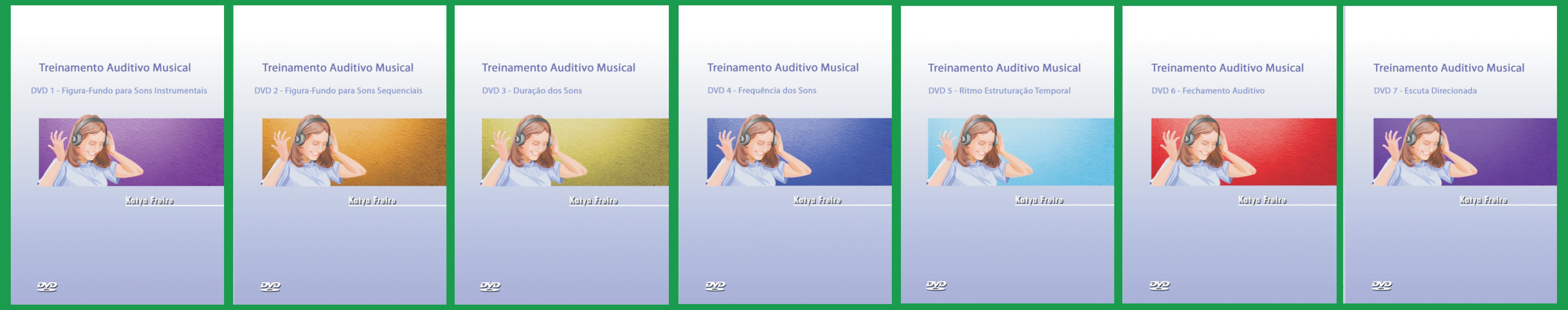
Check the benefit of TAM in a patient with bilateral mild sensorineural hearing loss in acute frequencies, a non-hearing aid user, with complaints of speech understanding in noise and lack of attention.

METHOD

Before and after application of TAM central auditory processing assessment was performed using the following tests: synthetic sentence identification test with contra and ipsilateral competitive message (SSI), pitch and duration pattern sentence tests (PPS, DPS), dichotic consonant-vowel test, attention tasks directed to the left, Staggered Spondaic Words (SSW), speech recognition index in noise and signal to noise ratio in sentences.
TAM was applied for 6 sessions with seven DVDs (DVD 1 and 2 - Figure-ground for Instrumental sound and Sequential Sounds; DVD3 - Directed Listening; DVD4 and 5- Sound Duration and Sound Frequency; DVD6 - Rhythm - Temporal Structuring; DVD7 - Auditory Closure).

Proposed exercise and target hearing mechanism

DVDs	Name of DVD	Exercise	Mecanism
DVD 1	Figure-ground of instrumental sound	Identification of sounds of instruments over ground music	Selective attention
DVD 2	Figure-ground for Sequencial sounds	Identification of series of instrumental sounds over ground music	Selective attention Temporal order
DVD 3	Directed Listening	Identification of two overlapped sounds with recognition of sound source	Selective attention Localization
DVD 4	Sound Duration	Identification and naming of a series of sounds with different durations	Temporal processing (Temporal order)
DVD 5	Sound Frequency	Identification and naming of a series of sounds with different frequencies	Temporal processing (Temporal resoulution and order)
DVD 6	Rhyihm - Tmeporal Structuring	Identification of rhythmic structures by motor reproduction and visual association	Temporal processing (Temporal resolution)
DVD 7	Auditory Closure	Identification of incomplete well-known songs	Selective attention



RESULTS

Table. Pre and Post T. A. M. assessment

Processment Auditory Tests	Pre T.A.M	Post T.A.M.
SSI (-15 dB relation)	RE -60% LE - 70%	RE - 80% LE - 90%
Naming PPS	60%	80%
Naming DPS	63,27%	93,24%
Dichotic vowel-consonant	RE - 45% LE - 20%	RE - 40% LE - 25%
Task of attention directed to left	30%	40%
SSW	RE - 99% LE - 95% RE (competitive) - 98% LE (competitive) - 90%	RE - 100% LE - 98% RE (competitive) - 100% LE (competitive) - 98%
Test of sentences in noise	Relation S/R - 4dB IPRF - 60%	Relation S/R - 4,8dB IPRF - 70%

The patient referred improvement in memory concentration and in understanding speech in competitive noise.

CONCLUSION

The Musical Auditory Training program and memory exercises have benefitted non-hearing aid users in speech understanding skills in noise and in attention.

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