

Pilot Study – The Listening Program®

School Using The Listening Program

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This is a brief report of a Beta test on the effectiveness of The Listening Program performed at a local private school in the metropolitan area of Denver, Colorado.

HYPOTHESIS

This small study was done to Field Test the effectiveness of The Listening Program. The belief is that if The Listening Program is effective in improving the listening function, then these improvements will be evident on the Tomatis Listening Test, a test of listening function. These changes would be reflected in improved threshold, slope, air conduction / bone conduction relationships and improved selectivity (a pitch discrimination test) compared to a control group.

DESIGN

The sample population came from a group of third and fourth graders from a normal classroom. They were randomly assigned into two groups, one being those doing The Listening Program (n=16) and a control group from the same grades (n=14). The group selection was random from a larger pool. Due to time constraints, the children listened to only seven of the eight weeks of The Listening Program. The control group listened to music from Sound Health fifteen minutes twice daily, whereas the test group listened to The Listening Program through headphones, also 15 minutes twice daily. Measurement of test results was done by the use of the Tomatis Listening Test. Although the Tomatis Listening Test is not widely known, it has been used by over 200 centers worldwide where the Tomatis Listening Method is utilized. It has a history of more than 30 years of clinical use as a tool in evaluating the listening function.

EQUIPMENT

The test group listened through Sony headphones model MDR-V600 and model MDR-F1 with a frequency response of 10 - 30,000 Hz with 40 and 50 mm drivers, respectively. The CDs were played on a Sony Discman model DE 705. The volumes were set at comfortable levels. The control group listened to Sound Health through conventional speakers.

TESTING

A pre- and post- Tomatis Listening Test was performed on a Maico audiometer.

Since the Tomatis Listening Test was the primary tool used for evaluation of change, a brief description will be given:

The children were in a sound quiet but not soundproof room. The following instructions were given: "Raise your hand on the side where you hear a tone when you are sure you have heard a tone." This requires not only certainty of what they heard but also lateralization of the sound. This was done for both air and bone conduction, with air conduction measured from 125 - 8000 Hz and bone conduction from 250 - 4000 Hz.

In addition, a test of selectivity was performed. The selectivity test requires the subject to identify a change in pitch of a pure tone and to identify whether this change in pitch went higher or lower than the previously administered tone. Open selectivity means that no errors were made on pitch discrimination. Closed selectivity means one or more errors of discrimination occurred. These errors are identified by a mark on the frequency at which the errors were made. The lowest pitch where an error was made defines the level of closure, e.g. an error at 1500 Hz would be identified as selectivity being closed to 1500 Hz. Normal for 9 - 10 year-olds is selectivity open to 4000 - 6000 Hz.

Several parameters were utilized in evaluating the listening test. The slope should be a smooth, ascending curve with a threshold within the normal range. The air conduction / bone conduction should be parallel to one another. In addition, the symmetry between the right and left ears is identified, and particular note is made of abnormal inversions where the bone conduction is over air conduction threshold. Finally, selectivity, as described above, is evaluated.

These tests were administered at the school prior to, and at the conclusion of, the seven weeks of listening.

FINDINGS

The test of selectivity was one parameter evaluated. And the second measure was the slope of the curve being a smooth and ascending. Air / Bone conduction dialogue was noted but not measured.

Selectivity: In the control group, three subjects showed an improvement. One of these opened selectivity in one ear, the other already being open was normal post-test. The other two subjects opened only one ear, with the other remaining closed. In contrast to the test group, none of the controls opened selectivity in both ears where both had been closed pre-test.

In the test group, four of sixteen were already normal pre- and post-test. Of the remaining twelve, where improvement could be seen, five normalized selectivity in both ears. In these five, selectivity had been closed in both ears. In another five selectivity improved to within normal limits. One subject showed improvement, but not to normal levels, and the final subject showed improvement in one ear and worsening in the other.

This data was submitted to statistical analysis, comparing improved selectivity between the control and treatment groups revealing a significance at 95 percent with a Chi square of 5.13 with a P less than 0.05

Slope: Examination of the slope throughout the auditory spectrum was evaluated with particular attention to the smoothness of the slope and threshold. Air / Bone conduction relationship was noted.

In the control group, six of fourteen showed mild improvement. No change in seven of fourteen, and one case showed a worsening.

In the test group, there was improvement in sixteen out of sixteen in the above measures. It is noteworthy that many of these changes were particularly strong in the language range - the zone of communication. Also of interest is that those showing the greatest deviation from normal showed the greatest improvement.

Statistical analysis showed a highly significant result with a Chi square of 19.85, with a P value of less than 0.005. This analysis was computed based on a binary split - improved versus not improved. The fact that one worsened in the control group was not separately computed.

SUMMARY

This is a very small study of a Beta test site using The Listening Program and controls in a group of third and fourth graders at a private school in the Denver metropolitan area. The use of the Tomatis Listening Test was chosen because of its value in measuring auditory processing and listening abilities. The positive changes noted above are often correlated with improved listening skills, improved reading, writing and both receptive and expressive language. In addition, there were improvements in attention and focus, as well as freedom from distractibility with many of the changes noted on this test.

In as much as this was a very small group and only one method was used to evaluate change, it is hoped that the findings here, which are highly significant, would prompt others to take a deeper and more thorough look at the effectiveness of The Listening Program by the utilization of other tests that are known to be measures of auditory processing, attention and focus. Also, due to cost constraints, only the test group listened through headphones. Future studies would be best if both the control and test groups listened via headsets.

This study was coordinated and supervised by Ron Minson, M.D., Medical Director of a behavioral medicine clinic. He has been a Tomatis practitioner since 1990 and has used the Tomatis Listening Test to evaluate improvements and changes in children's listening as they have gone through the Tomatis program. Dr. Minson was part of the development team for The Listening Program.

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End of Case Study

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