

## IMPLEMENTATION OF BIOFEEDBACK TECHNIQUES TO REDUCE STRESS WITH ELEMENTARY SCHOOL HEARING IMPAIRED STUDENTS

**Tonyia J. Litus, M.S.**  
**Melbourne, FL 32901**

This project addressed the need for teaching students how to manage stress and deal more effectively with stress-producing events in a socially acceptable way. One subject has had behavioral problems for several years, particularly explosive behavior without warning. A second subject experienced excessive audible inhalations during reading recitations and expressive speech-production situations.

The goals of the project were to examine the effects of implementing stress management techniques with the two sixth-grade hearing impaired students, using biofeedback instruments to monitor their nervous and cardiovascular systems over a three-month implementation period.

The specific objectives of the project were:

- (1) to improve ratings of general conduct on two six-week report cards from "unsatisfactory" to "needs improvement" to "satisfactory" for the male student;
- (2) to decrease the female hearing impaired student's audible inhalations per minute by 80%;
- (3) to improve self-image for both students; and
- (4) to reduce daily stress as indicated by:
  - (a) increasing peripheral temperature to the normal range (92-96 degrees Fahrenheit);
  - (b) decreasing the electrodermal response of each student by 50%;
  - (c) decreasing post-session self-reported stress to less than 5 on a scale of 0 = no stress to 10 = extreme stress; and

- (d) reducing scores on the Taylor Manifest Anxiety Scale to 19.

Analysis of the results shows that stress management skills and training can be successfully implemented with hearing impaired students. The first objective (to improve general conduct ratings for the male student) was achieved. The second objective (to reduce the female student's audible inhalations) was achieved; she exceeded the goal of an 80% reduction, placing her within the normal range. The third objective (improvement of self-image) was partially achieved; self-image score remained the same for the male student, but increased by 10 percentile points for the female student, thus achieving her goal.

The fourth objective was the reduction of physiological indices of daily stress. Neither student achieved the temperature increase goal, but some improvement was noted for each. The male student demonstrated an average increase of 2.2 degrees (from 84.2 to 86.4), while the female student showed an average increase of 6.5 degrees (from 84.1 to 90.6). With regard to the electrodermal response, the male student exceeded the goal by showing a 52% decrease from baseline, while the female student showed a decrease of 19%, an improvement but not enough to meet the goal. Self-reported stress was reduced to the lower half of the rating scale by both students. Both students also showed reductions of anxiety scale scores, though these varied with the achievement of the other goals.

The project findings suggest that biofeedback techniques can be beneficial to hearing impaired students and can be implemented within the school setting.