

PW4-10

International Trial of Promising New Auditory Training Program for Distinguishing Innocent and Pathological Murmurs.

Finley J.(1), Nicol P.(2), Caissie R.(1), Newman A.(1), Hoyt B.(1), MacAulay D.(1), Wright H.(2), Yim D.(2)

IWK Health Centre, Halifax Canada (1), Princess Margaret Hosp.for Children, Perth Australia (2)

Recognition of normal and abnormal heart sounds and murmurs is of key importance in detecting heart disease in children and adults but is poorly performed by physicians and students.

Current teaching methods are often archaic, lack clear objectives and not informed by understanding of sound recognition. Repetition is crucial to auditory recognition but absent in many teaching programs. New approaches are needed.

Methods: We studied an auditory training program which emphasizes repetition and is validated for patients with hearing loss. The objective was to distinguish between innocent and pathological murmurs. No medical background is needed, as students learn to discriminate between sounds as phenomena.

2 groups of student volunteers age 20- 31 with normal hearing were studied: 20 nonmedical students and 120 senior Australian medical students. After a pre test of 20 random murmur recordings from patients played by computer, both groups performed a one hour auditory training protocol. Murmurs were randomly presented in groups of four with the subject identifying them as normal or abnormal. There is an increase in auditory task difficulty as the subject progresses with the requirement of up to 6 consecutive correct answers before advancing, as with video games . A post test of 20 random recordings occurred immediately after training and again 2 months later. A control group of 42 medical students had no intervention between pretest and 2 month followup.

Results: Non medical students improved their mean scores from 72.9 (55-95%) to 90.4% (70-100%) (P.001) while medical students improved from 76.0 (43-100%) to 92%(70-100%) (P<.002) This improvement declined after 2 months to 80.1% (P<.002) for nonmedical students and for medical students, to 82% (50-100%, 95%) which was a non significant increase over the pre test score (p=0.1). Controls had no change. Students were enthusiastic about the program.

Conclusions: This new auditory training program rapidly teaches students to distinguish innocent and pathological murmurs with 90% accuracy. Medical education is not necessary for success with the program which may be very useful for nurses and other health professionals. Reinforcement teaching will likely be important. A trial with Canadian medical students is currently underway.