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Study of the effect of noise exposure on rat's hearing by distortion product otoacoustic emissions

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Abstract

Noise induced hearing loss remains a significant problem in industry. Temporary or permanent hearing loss is one of the problems of industrial societies. This research was conducted to study the effect of noise exposure on rat's hearing by distortion product otoacoustic emissions. This study was carried out on 14 male albino vistar rats. Animals were divided in two groups, control and experimental. Experimental group was exposed to 95 SPL noise with standard deviation 1 at 500-8000 Hz for 8 hours per day during 14 days. Distortion product otoacoustic emissions were measured and compared in days zero, seventeenth, and twentieth. Most levels of distortion product otoacoustic emissions were observed at frequencies of 3937.5 Hz in days zero, seventeenth and twentieth. Noise exposure caused reduction in level of DPOAEs as compared to the control group in days seventeenth (7.93 dB) and twentieth (5.83 dB) in comparison with day zero. Findings indicate that primary noise exposure causes damage to the hair cells that are responsible for understanding the high frequency sounds.

Keywords: Noise, Distortion product otoacoustic emissions, Rat, Hearing loss

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