

Otoacoustic emissions in occupational hearing monitoring

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ABSTRACT

Occupational noise exposure is still a major challenge worldwide, and hearing monitoring is an important tool to detect hearing damages. The problem is that the current hearing monitoring regime is a reactive system relying on standard pure-tone audiometry only performed every second to third year. If more frequent hearing measurements could be achieved, much smaller hearing thresholds shifts could be detected. Since standard pure-tone audiometry is a subjective test that needs full attention to give good results, it is challenging to get employees to perform regular measurements. Objective hearing tests, such as otoacoustic emissions, are therefore a much better test when frequent measurements is the goal. Otoacoustic emissions are also generated by the outer hair cells within the cochlea, the same cells that are known to be damaged first by excessive noise. To assess if otoacoustic emissions can be used in a hearing monitoring system, a measurements series over several months have been performed on several non-exposed workers. Measurements are presented, together with a discussion of necessary steps needed to implement a hearing monitoring regime used in occupational settings.

Keywords (3-6): Otoacoustic emissions, occupational health, hearing monitoring