

Tinnitus and Deafness in the Musicians

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Introduction

Music is the art of sound, with this concept begin all the texts of Musical Education in Schools of all levels.

Even though it is rarely considered and considered as a noise, it presents, like all other sound sources, an acoustic phenomenon, which may present auditory disturbances depending on the intensity level and exposure times. Orchestral musicians play almost 5-6 hours a day almost daily [1].

Historically Krishaber includes a chapter "Hygiene of musicians" in his Encyclopaedic Dictionary of Medical Sciences in 1876. Franck at the end of the 19th century was particularly interested in the pathologies of wind instruments, including hearing disorders [2]. The average sound levels for stringed instruments are 86-91 dB (A), 90-94 dB (A) for wind instruments, 83-94 dB (A) for brass instruments and up to 98 dB for percussion instruments. The musicians are exposed to high sound levels during the personal and group tests that increase the time of exposure to noise compared to the official performance [3,4]. In many cases it has been seen that the main effect of noise exposure is tinnitus, associated or less to a hearing loss [5]. Numerous studies have shown that the incidence of hearing loss in orchestral musicians is equivalent to that of the population not exposed to noise according to the ISO-1999 standard [6]. However, the high incidence of tinnitus and hyperacusis in musicians could be explained with metabolic effects on the inner ear

and an impaired excitation / inhibition in the central auditory pathways. High levels of sound pressure can cause hyper-reactivity of the cochlea with consequent disturbance of cochlear homeostasis and mechanical damage that does not always translate into hearing loss. In these cases, the only audiometric test cannot be considered sufficient for the classification of the problem, since in some cases tinnitus is not accompanied by a decrease in hearing.

The music when it is too loud can cause temporary or permanent damage to hearing, we think of hearing loss recognized as a professional disease.

Speaking of the damage that music can cause, it is useful both to those who listen to music, propose it and create it for work, and to those who listen to it for pleasure. Remember that the volumes of the music damage the hearing, not the musical genre.

If it is true that in rock or pop music you can observe rather high sound levels, it is also true that high sound levels can also be found in a country band even without speakers or amplifiers, or even during a classical music concert, during which rarely exceed 80 dB (A), but this is true only for the public, not for the orchestras [7-10].

The professional figures indicated below can be shown repeatedly and more or less prolonged at sound levels above the levels of action envisaged in Italy by art 189 of

Legislative Decree 81/08 [11]. In particular, the following considerations can be made:

- a) The people most directly exposed to the sound of music are the musicians themselves.
- b) For all musicians it is necessary to take into account the fact that the exposure to noise usually includes also the various phases of study and trial preparatory to public representation.

The hearing losses induced by music seem to be caused by:

- a) Years of exposure
- b) Position of the musician in the orchestra
- c) Position of the musician inside the orchestral "hole"
- d) Position near loudspeakers
- e) Repertoire
- f) Instrument played
- g) Local acoustics

People exposed prolonged to music, show an increase in their hearing sensitivity. Hence the ability to recognize a very wide ranges of sounds and all the other professional hard skills, so to speak, of a professional musician. However, the auditory risk also arises. In a slow, gradual and progressive way, the auditory system of professional musicians can go into stress from overexposure and suffering. The profession of musician can therefore lead to very serious hearing damage, such as partial loss of listening ability or even deafness. Passing, of course, for intermediate disorders, such as the annoying continuous buzzing, tinnitus, of which musicians suffer 57% more than non-musicians. As for all workers exposed to "occupational noise" even for musicians it would be necessary to evaluate a prevention plan and subsequently a restoration for possible damages [12,13]. The atypical nature of work and the difficulties of evaluation lead to real difficulties throughout Europe, where musical activity is not contemplated.

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