
REVIEW

NOISE POLLUTION AND HEARING LOSS: A SUMMARY OF UNDERLYING MECHANISMS OF DAMAGE AND PREVENTION STRATEGIES OF NOISE-INDUCED HEARING LOSS

Oana-Cristiana TACHE¹, Ioana Alexandra VODĂ², Dan MISCHIANU^{3,4},
Carmen Adella SÎRBU^{4,5,6*}

¹Medical Center for Outpatient Diagnosis and Treatment "Academician Ștefan Milcu" Bucharest, Romania

²ENT- Otoneurology, Nova Clinic, Bucharest, Romania

³Department no. 3, University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania

⁴Romanian Academy of Scientists, Bucharest, Romania

⁵Clinical Neurosciences Department, University of Medicine and Pharmacy "Dr. Carol Davila" Bucharest, Romania

⁶Department of Neurology, "Dr. Carol Davila" Central Military Emergency University Hospital, Bucharest, Romania

Correspondence to: Carmen Adella Sîrbu, Clinical Neurosciences Department, University of Medicine and Pharmacy "Dr. Carol Davila" Bucharest, Romania; e-mail: sircar13@yahoo.com

Abstract: *Tinnitus and hearing loss are the most common effects of long-term exposure of the hearing system to a noisy environment. Nowadays, due to continuing exposure to noise, an exquisite number of over 430 million individuals worldwide are experiencing hearing deficits, specifically young people aged between 12 and 35 years who are prone to severe hearing loss [1]. People with hearing loss experience a decrease in quality of life because of the lack of a cure for noise-related hearing loss due to its complicated pathophysiology. This summary focuses on key pathways of hearing loss damage, pharmacological treatments, and current prevention and therapy approaches.*

Keywords: noise pollution, hearing loss, tinnitus, mechanisms of damage, prevention.

DOI <https://doi.org/10.56082/annalsarscimed.2023.2.29>

INTRODUCTION

Noise now poses significant health risks all over the world. The World Health Organization (WHO) and the United Nations Environment Programme (UNEP) estimate that decades of increasing urbanization and industrialization have amplified occupational noise hazards

worldwide. People exposed to continued workplace noises, such as operating a jackhammer, or being around planes taking off, explosive blasts, or gunshots, are at risk of acquiring noise-induced hearing loss (NIHL). In addition, noises caused by human activity such as road and rail traffic, ventilation or cooling systems in buildings