The Psychoacoustic Lens:

Professor Brian C. J. Moore on the Future of Tinnitus Research and Assessment

Professor Brian C. J. Moore has shaped contemporary understanding of hearing and auditory perception for more than five decades. In our interview for this year's Annual Tinnitus Report, he places tinnitus research within the broader evolution of auditory science and issues a clear warning. Progress in treatment, mechanistic understanding and precision diagnosis will stall if the field allows psychoacoustic measurement to drift to the margins.

Professor Moore begins by reflecting on the contrasting research directions of China and the United States. China has prioritised neural mechanisms and biomedical investigation of tinnitus, whereas the United States has focused more on population-level epidemiology and the development of intervention programmes. These contrasting emphases reflect the pressures of national healthcare systems and funding models. There is widespread demand for rapid solutions rather than the slower and more labour-intensive research required to establish mechanisms. Professor Moore suggests that the mechanistic direction adopted in China may ultimately provide a stronger platform for treatment breakthroughs if it is maintained over time.

Professor Brian C.J. Moore (UK)

Within this global landscape, he points to a structural weakness shared by both countries. Research on measurement and prediction remains under-represented. Psychoacoustic characterisation of tinnitus occupies a far smaller proportion of today's literature than in earlier decades. Professor Moore believes this is not a reflection of reduced scientific importance, but of reduced expertise. Many researchers entering the tinnitus field have little formal background in psychoacoustics.

In some regions, the subject is not taught at all within audiology or psychology training. The consequence is that the field risks losing the very tools that allow systematic evaluation of tinnitus mechanisms and the effects of treatment.

"PROFESSOR MOORE ARGUES THAT THERE IS STILL MUCH TO DISCOVER IN TINNITUS PSYCHOACOUSTICS, INSISTING THAT PHENOMENA LIKE RESIDUAL INHIBITION AND EARLY NOISE-RELATED AUDITORY INJURY REQUIRE FAR DEEPER INVESTIGATION TO UNLOCK CLINICAL BENEFIT WITHOUT RISKING FURTHER HARM."

He challenges the assumption that psychoacoustics has already told us everything we need to know. Residual inhibition is a clear example. Some individuals experience short-term suppression of tinnitus following sound exposure and use it as a form of temporary relief. However, concerns remain about the sound levels required and whether they risk hearing damage.

Professor Moore argues that this phenomenon deserves far more investigation, both for its clinical potential and its implications for auditory mechanisms. He also highlights the need for psychoacoustic procedures that detect early noise-related auditory injury before tinnitus becomes established.

When describing what an ideal tinnitus assessment battery should contain, he returns to fundamentals of auditory science. Assessment should characterise the percept itself rather than focus solely on questionnaires about distress. Whether the tinnitus is tonal or noise-like, steady or fluctuating, high or low pitched, and the overall spectrum of the tinnitus should be established using appropriate psychoacoustic procedures. Loudness should be quantified using matching or a visual analogue scale. Determining whether tinnitus can be masked is valuable both clinically and scientifically. For Professor Moore, these elements are essential to link mechanisms, perceptual change and treatment outcomes.

Although many of his recent publications are not directly about tinnitus, they carry lessons for the field. Work on auditory stream segregation, speech identification, temporal fine structure, soundscape perception and neural signal processing shows that perception is rarely shaped by a single isolated sound source. For most people, tinnitus is heard alongside environmental sounds rather than in silence. He believes the perceived loudness, clarity and intrusiveness of tinnitus are influenced by the surrounding acoustic scene.

The future of tinnitus science therefore requires an ecological shift, moving beyond silent laboratory spaces and towards investigating how tinnitus behaves in real world listening environments.

His reflections converge into a consistent message. Mechanistic research and clinical innovation both matter, but neither can succeed without precise and systematic measurement of the tinnitus percept. Psychoacoustics is not a legacy of the early era of tinnitus research. It is the scientific foundation that allows clinicians and researchers to determine what tinnitus is, how it changes and whether a treatment is working. For Professor Moore, protecting and advancing this foundation is one of the most important responsibilities the tinnitus field holds over the next decade.

BRIAN MOORE ON PSYCHOACOUSTICS

Tinnitus research and treatment will not advance meaningfully unless the field protects and strengthens psychoacoustic measurement as the foundation for understanding the tinnitus percept and evaluating whether a therapy truly works.