**ABSTRACT TEMPLATE**

**Basic Auditory Science 2019, London, UK**

**Title [boldface Arial 12 pt]**

Authors [plain text Arial 11pt, first initial and surname for each with presenting author underlined]

*Affiliation [italics Arial 11pt, university, city and postcode (and country if not UK)]*

Abstract body [plain text Arial 11pt, no more than 400 words including Acknowledgments and References]

**Acknowledgments:** [plain text Arial 11pt]

**References:** [plain text Arial 11pt]

Presenting author is a student or postdoc? Yes or No

**EXAMPLE:**

**Auditory dysfunction following exposure to extreme temperatures in Westeros**

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While the impact of certain environmental factors, such as noise exposure, on hearing impairment is the subject of considerable scientific enquiry, the nature and extent of temperature-related damage to the auditory system – particularly in humans – remains a mystery. This topic is of growing interest to clinicians and policy-makers in the context of increasingly frequent catastrophic climate events. To characterise the effects of extreme cold and heat on the auditory system, we took advantage of unique circumstances during a period of upheaval on the continent of Westeros. Military personnel and civilians affected by conflict between (a) rivalling claimants to the Iron Throne, and (b) the living and the dead, were recruited in a longitudinal study. Participants were administered a test battery that included assessment of hearing thresholds, frequency discrimination, and cortical responses to the song “The Rains of Castamere”. Fifty professional soldiers with normal hearing were tested before exposure to extreme cold while operating north of The Wall, including via close contact with White Walkers (mean temperature: -154˚C). Of these participants, twenty survived and were subsequently re-tested, along with twenty age- and gender-matched non-combatant inhabitants of King’s Landing, before and after a major dragonfire event (mean temperature: 1538˚C) (Targaryen & Drogon, 2019). We found that extreme cold led to a marked elevation in hearing thresholds, broadening of frequency tuning curves, and diminution of cortical responses to music, in every surviving subject. Examination of one ear detached during battle revealed that frozen endolymph may have been a contributing factor to at least some deficits. The largely destructive nature of the subsequent dragonfire event precluded most planned testing and prevented even histological examination in many cases. One surviving (lightly toasted) soldier was found to have test scores indistinguishable from those measured prior to the initial extreme cold event. However, this subject reported persistent tinnitus and/or auditory hallucinations taking the form of clanging bells and falling masonry. We conclude that extreme temperatures can have large and sometimes opposing effects on the auditory system, both in the periphery and more centrally. We highlight the need for careful experimental manipulations in future research in order to yield more accurate estimates of the impact of particularly hot and cold events on hearing.

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**References**:

Targeryon, D. & Drogon, D. (2019). *J Burning Things* 10:111-129.

Presenting author is a student or postdoc? Yes