

# Frequency selectivity in canaries with a hereditary hearing loss (A)

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Sensorineural hearing loss is associated with reduced frequency selectivity due to the broadening of the auditory filters in mammals. In European starlings, hearing loss caused by the ototoxic drug kanamycin results in the widening of auditory filters at 5 kHz [Marean *et al.* (1998)]. In the present study, we examine frequency selectivity in a bird with a permanent hereditary hearing impairment, the Belgian Waterslager (BWS) canary. This strain of canary has long been bred for its loud, low-frequency song, and has been shown to have a hearing loss primarily at higher frequencies (2 kHz and above). Using operant conditioning and the method of constant stimuli, thresholds for detecting pure tones in flat-spectrum broadband noise were measured in BWS and non-BWS canaries. Critical ratios were calculated for comparison with other species of birds. At higher frequencies, critical ratios for BWS canaries were much larger than those of non-BWS canaries and other birds, suggesting reduced frequency selectivity in the region of the birds' hearing loss. [Work supported by NIDCD R01DC001372 to RJD and Brenda M. Ryals.]