

1997, 567, Session T3, Poster**Anatomy of the cochlear nuclei and nucleus laminaris in Belgian Waterslager canaries, *Serinus canaria***

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Belgian Waterslager canaries suffer from an inherited sensorineural hearing loss that is associated with severe hair-cell pathologies including fewer hair cells. BWS canaries also show an increase in cell proliferation rate in their papillae compared with other birds including normal canaries. Since neurons in the immature avian cochlear nucleus are dependent upon eighth nerve activity for their survival, the purpose of this study was to compare the anatomy of cochlear nuclei in normal and BWS canaries for evidence of central correlates of peripheral auditory pathology.

Five adult, mixed-breed canaries from a local commercial source, five BWS canaries, two budgerigars and two zebra finches were used in these studies. Paraffin-embedded tissue was sectioned at 10 μ m thickness, stained by the Kluver-Barrera method, and used to perform morphometric studies. Cell numbers for the three nuclei were estimated by counting the total number of nuclear profiles throughout the entire length of nuclei angularis, magnocellularis, and laminaris. For volumetric estimates, cross-sectional profiles of the entire nuclei were traced using a camera lucida. Tracings were then scanned and area estimates obtained with NIH Image. Results indicate a reduction in cell number is associated with the peripheral auditory pathology observed in BWS canaries.

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