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Session "E6 Development I - LSO, Cochlear Nucleus, Auditory Cortex and Onset of Function "

**Development of auditory sensitivity in budgerigars (Melopsittacus undulatus)**

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" We examined the course of vocal development in budgerigars from hatch to four weeks post-fledging. During this period, calls undergo dramatic changes that culminate in a stereotyped FM patterned food-begging call by the time of fledging. A shortened version of this call becomes the bird's first adult vocalization. Auditory feedback influences the development of these vocalizations, but little is known about nestling hearing. The present study tracked the development of auditory sensitivity in nestling budgerigars using the auditory brain stem response (ABR). Brainstem evoked potentials were recorded in 10 adult and 6 nestling budgerigars. Tone burst stimuli (dur = 5 ms; 1 ms rise/fall) ranging in frequency (500 - 5700 Hz) and intensity (30-100 dB SPL). Adult ABR audiograms are similar in shape to behavioral audiograms but are elevated by 20-30 dB. Responses could be obtained for 7-9 day old nestlings but only at frequencies at or below 2000 Hz. Thresholds for these frequencies were above 90 dB SPL but improved noticeably over the next 6 days. By 13-15 days of age, responses could be obtained for frequencies up to 4000 Hz, with best sensitivity at 2000 Hz. By the 30 days post hatching, the ABR responses could be obtained to frequencies up to 5700 Hz, with the shape of the ABR audiogram becoming more adult-like. The average ABR audiogram for birds one week post-fledging was indistinguishable from that of adult budgerigars. Because budgerigars use auditory feedback to learn and modify their calls throughout life, knowing how the auditory system develops and what and when the animal hears provides insights into the role that hearing plays in the development of different types of vocalizations.

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