100.5

MOTOR CONTROL OF CRYSTALLIZED SONG IS MODIFIED BY SENSORY FEEDBACK. R. A. Suthers[1*], F. Goller[1] and J. M. Wild[2]. [1]Sch. of Med., Prog. for Neuroscience and Center for the Integrative Study of Animal Behavior, Indiana Univ., Bloomington, IN 47405; [2]Dept. Anat, Univ. of Auckland Sch. of Med., Auckland, N. Z.

Song production requires precisely coordinated activity in the respiratory and syringeal (vocal organ) muscles. Crystallized adult song is characterized by acoustic and motor stereotypy which does not require auditory feedback, suggesting it is represented by fixed central motor programs. To determine if this adult motor pattern is modulated by sensory feedback, we briefly increased the respiratory pressure by injecting short (10 - 30 ms) puffs of air through a cannula into a cranial thoracic air sac of singing, adult male cardinals (*Cardinalis cardinalis*), while monitoring air sac pressure, the rate of airflow through each bronchus and the electromyogram (EMG) of abdominal expiratory muscles. Air injection during a syllable is accompanied by a compensatory decrease in the amplitude of the expiratory EMG during that syllable, unless the injection occurs late in the syllable. Imposition of a positive air sac pressure during trilled phrases alters airflow during the normally inspiratory intervals between syllables, but does not affect the temporal respiratory rhythm or airflow during phonation. Mechanoreceptive or auditory feedback during phonation may stabilize the rate of syringeal airflow. Supported by NIH, NSF & APART.