weak but consistent coupling of body sway with room motion. Tracking of room motion with head movements was robust, matching both the frequency and amplitude of room motion. This was true even when the only information about room motion came from reflected sound (i.e., when the speakers were stationary). The results suggest a strong ability of sighted persons to use acoustic flow in the perception and control of their own action. [Work supported by NSF (BCS-0236627).]

2aPP15. Sensitivity to changing stimulus distribution characteristics in auditory categorization. Sarah C. Sullivan (Dept. of Psych., Univ. of Texas, Austin, Texas 78712-0187, sullivan@psy.utexas.edu), Andrew J. Lotto (Boys Town Natl. Res. Hospital, Omaha, NE 68131), Elizabeth T. Newlin, and Randy L. Diehl (Univ. of Texas, Austin, Texas 78712-0187)

This experiment examined the ability of humans to categorize sounds as a function of changing training distribution characteristics. Participants were presented non-speech sounds randomly sampled from two overlapping distributions. The sounds consisted of 25 narrow-band noise bursts varying in center frequency from 1000 to 1360 Hz. Four different distribution pairs were created by varying the ratio of stimuli in each distribution (i.e., prior probabilities), resulting in different distribution cross-over points or ideal boundaries. Subjects identified the distribution from which each sound was drawn and were provided feedback. The training distributions were switched midsession without alerting the subjects. Performance was tracked by plotting identification functions and noting boundary placement for each individual block. Previously collected data suggested that the ability to learn optimal boundaries was determined in part by the proximity of the distribution boundary to the stimulus midrange point. Results from the current experiment also suggest that distance from the midrange point constrains learning. Subjects were able to learn optimal or near-optimal boundary placement for overlapping distributions only when the ideal boundary was near the midrange point and when those distributions were presented during the initial blocks of training in the experiment. [Work supported by NSF and NIDCD.]

2aPP16. Model for noise-induced hearing loss using support vector machine. Wei Qiu, Jun Ye, Xiaohong Liu-White, and Roger P. Hamernik (Auditory Res. Lab., State Univ. of New York at Plattsburgh, 101 Broad St., Plattsburgh, NY 12901)

Contemporary noise standards are based on the assumption that an energy metric such as the equivalent noise level is sufficient for estimating the potential of a noise stimulus to cause noise-induced hearing loss (NIHL). Available data, from laboratory-based experiments (Lei *et al.*, 1994; Hamernik and Qiu, 2001) indicate that while an energy metric may be necessary, it is not sufficient for the prediction of NIHL. A support vector machine (SVM) NIHL prediction model was constructed, based on a 550-subject (noise-exposed chinchillas) database. Training of the model used data from 367 noise-exposed subjects. The model was tested using the remaining 183 subjects. Input variables for the model included acoustic, audiometric, and biological variables, while output variables were PTS and cell loss. The results show that an energy parameter is not sufficient to predict NIHL, especially in complex noise environments. With the kurtosis and other noise and biological parameters included as additional inputs, the performance of SVM prediction model was significantly improved. The SVM prediction model has the potential to reliably predict noise-induced hearing loss. [Work supported by NIOSH.]