

Schieber, F., Kline, D. & Lyman, B. (1986). Changes in low spatial frequency channel bandwidth may accompany old age. The Gerontologist, Vol. 26, p. 34A

AGING AND CONTRAST SENSITIVITY: AN ATTEMPT TO ACCOUNT FOR DISAGREEMENTS IN THE LITERATURE. Cynthia Owsley Dept. of Ophthalmology, University of Alabama at Birmingham, 35294.

Several studies have examined how aging affects spatial contrast sensitivity in older adults in good eye health. These studies have generally indicated either of two patterns of results: (1) older adults tend to have contrast sensitivity losses at higher spatial frequencies; or (2) their sensitivity is very similar to that of young adults. Both groups of studies purport to have tested the same types of older adults, those free from significant eye pathology. In an attempt to reconcile these differing results, we have re-examined some of our own data on aging and spatial contrast sensitivity. These data were obtained by measuring contrast thresholds in young (20-35 yrs) and older (60-87) adults for gratings having a range of spatial frequencies. Our data indicate that older adults' letter acuity is systematically related to the extent of their contrast sensitivity loss: older adults having better acuity also have better high frequency sensitivity; old adults whose acuity is similar to young adults' acuity exhibited no sensitivity loss. These data suggest that disagreements in the literature as to how aging affects contrast sensitivity may stem from studies using differing acuity criteria for "good" eye health and differing definitions of what constitutes significant eye pathology.

AGE DIFFERENCES IN THE BANDWIDTH OF ADAPTATION FOR MOVING, LOW SPATIAL FREQUENCY STIMULI. F. Schieber (Oakland Univ., Rochester, MI), D.W. Kline & B.J. Lyman (Notre Dame Univ.)

The transient-sustained shift model of visual aging proposes that young and old subjects process moving stimuli in qualitatively distinct manners. To evaluate this proposition, age differences in contrast sensitivity for moving, low spatial frequency (0.5, 0.75, 1.0, 1.5 & 2.0 c/deg) sine-wave gratings were assessed both before and after adaptation to a 1.0 c/deg grating. Baseline and post-adaptation contrast sensitivity functions (CSFs) were collected for young (\bar{X} =18.3) and old (\bar{X} =66.6) observers in each of two sessions: in one session the adaptation stimulus drifted at 4.3 deg/sec and in the other session the adaptation stimulus was stationary. Analyses revealed no age dif-

ferences in baseline CSF. Attenuation of contrast sensitivity was significantly greater after adaptation to the moving grating relative to its stationary counterpart. Contrary to expectation, the adaptation condition effect did not interact with age. However, age differences in the bandwidth of the adaptation functions did emerge. Young subjects demonstrated classic "bandpass" adaptation functions which were narrowly tuned around 1.0 c/deg. Older subjects demonstrated "lowpass" adaptation functions-i.e., attenuation of contrast sensitivity was equally strong at 0.5 to 1.0 c/deg but declined above 1.0 c/deg. This suggests fundamental age-related changes in vision.

CHANGES IN SPEECH PERCEPTION IN HIGH AND LOW CONTEXT SENTENCE CONDITIONS. K.M. Hutchinson, The Pennsylvania State University, University Park, PA 16823

Many studies of speech perception by elderly listeners do not address the effects of contextual information in everyday listening situations. The Speech Perception in Noise test was presented to young and older adults to investigate the influence of relevant contextual cues and low contextual cues on speech perception. The test was presented at two background noise levels. When the noise was high, significant differences were found between groups in the low context conditions. Older listeners were able to take advantage of high context information to better understand difficult speech messages.

THE USE OF PROSODIC, SYNTACTIC, AND SEMANTIC STRUCTURE BY ELDERLY ADULTS IN COMPREHENDING RAPID SPEECH. E. L. Stine, A. Wingfield, & C. J. Lahar, Psychology Department, Brandeis University, Waltham, MA 02254

In spite of age-related auditory processing deficits, older adults are often found to be quite capable listeners when processing load is not great. The present study addressed whether the elderly made differential use of the prosodic, syntactic, and semantic structure inherent in normal speech to compensate for a processing disadvantage for rapid speech. Younger (n=24) and older (n=24) adults listened to and immediately recalled a series of 16-word strings of varying speech rates. Each string was either a normal English sentence with normal prosodic contour (N), a normal sentence spoken in list intonation and thus lacking normal prosody (NL), a string with syntactic constraints spoken with normal prosodic contour but lacking in meaning (S), or a random word string (R). Age differences were greater for NL, S, and R strings relative to N strings. Performance declines among the elderly as a function of speech rate were exacerbated in the NL condition, suggesting that prosody is a feature