
Premorbid Ability and Asymmetric Cognitive Profiles in Patients with Alzheimer's Disease. Apolipoprotein E (apoE) appears to have specific neurocognitive consequences in patients diagnosed with probable Alzheimer's disease (AD). Smith and colleagues (1998) reported that patients who were homozygous for the e4 allele of apoE performed more poorly on the Verbal Comprehension factor of the Mayo Cognitive Factor Scales (MCFS; Smith et al., 1994) than patients without this allele. In contrast, Finton and colleagues (1998) found that patients with probable AD who were e4 homozygous exhibited relatively better verbal as compared to spatial (V-S) functioning, whereas patients without the e4 allele demonstrate the opposite pattern of performance.

The apparent discrepancy between studies may be related to differences in the demographics of patients with probable AD, since the participants in the latter study who were homozygous for the e4 allele were younger (Mean age = 71.8 vs. 78.7 years) and averaged higher levels of education (Mean education = 14.1 vs. 11.5 years). The current study addressed this hypothesis by examining the relationship of age, education, and performance on the MMSE to V-S performance.

Participants included 188 Caucasian patients who were diagnosed with probable AD. Patients were divided into three groups based on the presence and number of e4 alleles. Results from linear regression analyses indicated that education was the only significant predictor of V-S performance for patients having the 3/3 (p < .01), 3/4 (p < .05), and 4/4 (p < .05) genotypes, and accounted for 20%, 6%, and 20% of the variance, respectively. This is consistent with previous research which has found that heterogeneity in cerebral glucose metabolism (Alexander et al., 1997) and neuropsychological functioning (Caramelli et al., 1997) in patients with probable AD is associated with premorbid intellectual ability. The mechanism underlying the relationship between education and V-S performance is not clear at present; however, it is possible that educational attainment is an indirect measure of cognitive reserve and may mitigate against the neuropathology associated with AD.

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Different Underlying Mechanisms for Deficits in Concept Formation in Dementia. Concept formation is known to be impaired among patients with Alzheimer's disease (AD); however, little is known about concept formation in patients suffering from ischemic vascular dementia (IVD). Also, few studies are reported which explore the underlying cognitive deficits responsible for impairment in concept formation. The present study investigated differences in the underlying mechanisms for impaired concept formation between patients with IVD (n = 42) and AD (n = 49) matched for dementia severity, age, and education. The Similarities Subtest (SIM) from the Wechsler Adult Intelligence Scale-Revised (WAIS-R), and neuropsychological tests of executive functioning, language, and memory performance were administered to all patients. Errors made on SIM were categorized according to a novel scoring system designed to distinguish responses which report a vague or irrelevant attribute which is shared between the test items (in set errors; e.g., coat and suit—"you buy them in a store") from responses which fail to provide a common attribute, but state the differences between items (out of set errors; e.g., eye and ear—"you see with your eye and hear with your ear") or report how the items may relate to each other (e.g., fly and tree—"a fly can land on a tree"). Between-group comparisons demonstrated no difference in SIM test performance according to the scoring system described in the WAIS-R manual. Nonetheless, AD patients produced a greater proportion of in set errors (t[84] = 20.11, p < .001), while patients with IVD produced a greater proportion of out of set errors (t[84] = 2.62, p < .010). Principal component analysis (PCA) and correlations were performed with SIM vari-
ables and other neuropsychological tests of memory, language and executive functions. Results showed that SIM in set errors were related to tests of semantic knowledge, while SIM out of set errors were related to measures of executive functions. We conclude that the impairment in concept formation among IVD subjects is related to deficits in the executive functions necessary to monitor responses, attain mental set, and inhibit impulsive answers. By contrast, the underlying mechanism for poor concept formation among patients with AD appears to be related to degradation of semantic knowledge.

Grigsby, J., Eilertson, T. B., Kramer, A. M., & Kaye, K.
Pain and Ability to Regulate Movement Predict Concurrent Functional Capacity Among Older Stroke Patients.
Purpose: We evaluated the utility of the Mini Mental State Exam (MMSE), Geriatric Depression Scale (GDS), Behavioral Dyscontrol Scale (BDS—a measure of the executive capacity to regulate purposeful motor behavior), and severity of complaints of pain as predictors of current functioning among a sample of inpatients receiving rehabilitation following stroke. The BDS is a brief measure with a large normative geriatric database (approximately 1800 persons aged 65 and older) that previously has been shown to predict independent functioning and the sort of behavior problems associated with dys-executive syndromes. Subjects and Method: Data analyzed for 216 hospitalized geriatric stroke patients (in several rehabilitation units and skilled nursing facilities participating in a national multi-site study) were collected in the week prior to discharge. Sample consisted of 131 women, 85 men with mean age = 77.2 (SD = 6.8). Independent variables included BDS, MMSE, and GDS scores, age, education, gender, and rating of pain severity on a six-point scale (0 = none, 5 = intolerable). The dependent variables included discharge to home (yes-no), and rehabilitation nurses’ ratings of patients’ capacity (on discharge) to engage in several activities of daily living (ADLs). These items were taken from the Barthel Index: bathing, dressing upper body, dressing lower body, eating, grooming, using the toilet, bed transfers, bladder control, bowel control, toilet transfers, and tub transfers. A final dependent measure was the summary score of nurses’ ratings across all ADLs. Data were analyzed by means of ordinary least squares regression for the ADL items and total Barthel Index, and logistic regression for discharge to home. Results: For discharge to home, BDS and GDS explained a significant amount of the variance. For all remaining twelve dependent variables, BDS score accounted for a significant amount of the variance after controlling for age, education, and sex. MMSE score entered only one of the regression equations (bladder control). Pain severity was a significant predictor for all variables but bladder control, bowel control, and discharge to home. BDS explained a significant portion of variance in 5 of the 11 ADL items, and the total Barthel score. Conclusion: Replicating and extending previous findings reported by three different groups, the results support the hypothesis that the capacity to regulate motor behavior is a more important determinant of functional capacity among older adults than is general mental status or depression when controlling for age, education, and gender. The results are consistent with prior research suggesting that the capacity to regulate purposeful movement is strongly related to the ability to engage in complex goal-directed behavior. Pain severity was a significant predictor of functional status in this sample of rehabilitation patients.

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Effects of Inter- and Intra-Hemispheric Damage on Rhyme Production by Stroke Patients.
The purpose of this study was to investigate the effects of laterality and site of lesion on word retrieval and rhyme generation processes, to interpret the results within the framework of current lexical retrieval models, and to incorporate the findings into therapy strategies.