Herman Buschke   -   selected references

1 Buschke, H., Sliwinski, M. J., Kuslansky, G., Katz, M., Verghese, J., & Lipton, R. B. (2006). Retention weighted recall improves discrimination of Alzheimer's disease. *Journal of the International Neuropsychological Society, 12,* 436-440.
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   Impaired recall for early items (primacy) and late items (recency) on word list recall tests are seen in Alzheimer's disease (AD). We compared conventional scoring on the Telephone Instrument for Cognitive Status (TICS) recall list with scorings based on retention-weighted recall (RWR: each item weighted by its serial position) in older adults participating in a community-based aging study. Subjects with mild AD (N=18) did not differ from those without dementia (N=231) with respect to recency (46% vs. 59%, p = 0.2), but had impaired primacy (2% vs. 39%, p < .001) on word recall on the TICS. RWR scoring improved the effect size (1.52 SD) compared to conventional scoring (1.08 SD). With a fixed sensitivity of 85%, specificity was lower using conventional scoring (56%) than RWR (76%) scoring. Our findings suggest that optimized RWR scoring of word list free recall can improve detection of mild AD compared to conventional scoring

2 Verghese, J., Lipton, R. B., Katz, M. J., Hall, C. B., Derby, C. A., Kuslansky, G. et al. (2003). Leisure activities and the risk of dementia in the elderly. *New England Journal of Medicine, 348,* 2508-2516.
   BACKGROUND: Participation in leisure activities has been associated with a lower risk of dementia. It is unclear whether increased participation in leisure activities lowers the risk of dementia or participation in leisure activities declines during the preclinical phase of dementia. METHODS: We examined the relation between leisure activities and the risk of dementia in a prospective cohort of 469 subjects older than 75 years of age who resided in the community and did not have dementia at base line. We examined the frequency of participation in leisure activities at enrollment and derived cognitive-activity and physical-activity scales in which the units of measure were activity-days per week. Cox proportional-hazards analysis was used to evaluate the risk of dementia according to the base-line level of participation in leisure activities, with adjustment for age, sex, educational level, presence or absence of chronic medical illnesses, and base-line cognitive status. RESULTS: Over a median follow-up period of 5.1 years, dementia developed in 124 subjects (Alzheimer's disease in 61 subjects, vascular dementia in 30, mixed dementia in 25, and other types of dementia in 8). Among leisure activities, reading, playing board games, playing musical instruments, and dancing were associated with a reduced risk of dementia. A one-point increment in the cognitive-activity score was significantly associated with a reduced risk of dementia (hazard ratio, 0.93 [95 percent confidence interval, 0.90 to 0.97]), but a one-point increment in the physical-activity score was not (hazard ratio, 1.00). The association with the cognitive-activity score persisted after the exclusion of the subjects with possible preclinical dementia at base line. Results were similar for Alzheimer's disease and vascular dementia. In linear mixed models, increased participation in cognitive activities at base line was associated with reduced rates of decline in memory. CONCLUSIONS: Participation in leisure activities is associated with a reduced risk of dementia, even after adjustment for base-line cognitive status and after the exclusion of subjects with possible preclinical dementia. Controlled trials are needed to assess the protective effect of cognitive leisure activities on the risk of dementia. Copyright 2003 Massachusetts Medical Society

3 Buschke, H., Sliwinski, M. J., Kuslansky, G., & Lipton, R. B. (1997). Diagnosis of early dementia by the Double Memory Test: encoding specificity improves diagnostic sensitivity and specificity. *Neurology, 48,* 989-997.
   Notes: Saul R. Korey Department of Neurology, Albert Einstein College of Medicine, Bronx, NY 10461, USA OBJECTIVE: To compare the Double Memory Test (DMT) with standard memory tests in the diagnosis of early dementia. BACKGROUND: Diagnosis of dementia requires

memory impairment, but few memory tests coordinate acquisition and retrieval to optimize encoding specificity for high sensitivity and specificity. The DMT was developed to improve early diagnosis. DESIGN: We compared the discriminative validity of the DMT, Paired Associates (PA), and Logical Memory (LM) memory tests in a nested case-control study of 30 cases of early dementia and 90 controls matched for age, education, and sex. METHODS: The DMT includes memory tests with (CCR) and without (ICR) encoding specificity. Both tests use category cues to elicit retrieval, but CCR optimizes encoding specificity because the same cues are used for acquisition and retrieval. ICR does not because category cues are used only for retrieval. We used conditional logistic regression to estimate diagnostic sensitivity and specificity. RESULTS: The median BIMC of dementia cases was 10, indicating mild dementia. CCR had much higher sensitivity (93%) and specificity (99%) than ICR (53%, 94%), PA (68%, 91%), and LM (48%, 92%). CCR had the greatest advantage in the mildest cases. CONCLUSIONS: CCR has substantially higher sensitivity and specificity for diagnosis of early dementia than memory tests that do not coordinate acquisition and retrieval. Superior discrimination by CCR is due to an encoding specificity deficit in dementia that increases the difference in recall by cases and controls. CCR is an efficient test with excellent discriminative validity that should facilitate diagnosis of early dementia

4 Buschke, H., Sliwinski, M., Kuslansky, G., & Lipton, R. B. (1995). Aging, encoding specificity, and memory change in the Double Memory Test. *Journal of the International Neuropsychological Society, 1,* 483-493.
Notes: Aged and young adults were tested by category cued recall after learning with category cues (CCR) or with item cues (ICR). CCR was about twice ICR for both aged and yound adults. The aged recalled less than the young and did not benefit as much from greater encoding specificty and deeper processing in CCR. ICR and CCR were correlated, so that expected CCR can be predicted from ICR. The regression of CCR on ICR was linear for young adults, but was piecewise linear for the aged, showing that the relationship between ICR and CCR was not uniform for the aged adults. Lower than expected CCR by a subset of aged without clinical dementia may be a sign of preclinical dementia

5 Buschke, H. (1984). Cued recall in amnesia. *Journal of Clinical Neuropsychology, 6,* 433-440.
Notes: Use of a search procedure to control processing during learning results in apparently normal cued recall by some amnesic patients with impaired free-recall learning. This suggests that their ability to encode and retrieve may be relatively intact when they are induced to carry out effective processing during learning. When processing is controlled during learning, cued recall should be useful for neuropsychological evaluation of residual learning and memory capacity

6 Buschke, H. & Fuld, P. A. (1974). Evaluating storage, retention, and retrieval in disordered memory and learning. *Neurology, 24,* 1019-1025.

7 Buschke, H. (1973). Selective reminding for analysis of memory and learning. *Journal of Verbal Learning and Verbal Behavior, 12,* 543-550.
Notes: A new and more appropriate paradigm for verbal learning is described and illustrated. Reminding a subject only of items not recalled on the immediately preceding trial, instead of presenting all items on each trial, shows retrieval from long-term storage when items are retrieved again without further presentation. This permits simultaneous analysis of long-term storage (LTS), retrieval from long-term storage (LTR), and recall from short-term storage (STM). Evaluating LTR in terms of items consistently retrieved on all subsequent trials (without further presentation) differentiates LTR into random and organized LTR, and also provides a measure of list learning for comparison with item learning. To illustrate the use of selective reminding for investigation of retrieval alone, an example is also presented of reminding only until first recall.