Cognitive training programs have demonstrated effectiveness in improving cognitive functioning (e.g., memory, processing speed) in older adults, with beneficial effects still present at 5 year follow-ups. However, there is considerable variability in responsiveness to these training programs, and certain baseline characteristics seem to predict this responsiveness. For example, older age and poorer baseline memory seem to predict responsiveness to memory training programs. The current study sought to assess patterns of variability in responsiveness to the largest cognitive training program in community-dwelling older adults to date.

Methods: Participants: 619 community-dwelling older adults enrolled in the memory arm of the ACTIVE trial (Advanced Cognitive Training for Independent and Vital Elderly) were participants. All had MMSE ≥ 23, no dementia, no functional decline, and completed 80% of training sessions.

Procedures: Cognitive testing was completed at baseline and following the 10-week cognitive intervention. (Testing was also completed at 1-, 2-, and 5-year follow-ups, but those data were not considered here.) Two list learning tasks (HVLT and RAVLT) and a paragraph recall task (Rivermead Behavioral Memory Test) were used to assess variability of response to the intervention.

Statistical Analyses: Participants in the memory arm who showed improvement from pre- to post-testing (i.e., ≥1SEM based on no-contact control participants) were considered “responders.” Latent class analyses were used to determine if there were different response patterns of the memory training, and to identify which participants fit which response patterns. Different models examined the likelihood of 1 – 4 different response patterns. Once participants were “assigned” to a response pattern group, logistic regression examined the baseline demographic and cognitive variables that predicted group membership.


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Predicting Memory Training Response Patterns: Results from ACTIVE

Results: Latent class analyses identified three response patterns: 1) high HVLT Total response (n=123), 2) high RAVLT response (n=210), and 3) low response on all memory measures (n=271). Table 4 shows baseline differences between the participants in these three groups. In general, the HVLT group had more Caucasians, more education, higher MMSE, and better memory, reasoning, and processing speed composites than the other two groups. Table 5 shows the unadjusted logistic regression results. Those in the HVLT group (vs. RAVLT group) had higher MMSE and better reasoning and speed of processing scores, and were Caucasian and more educated. Those in the RAVLT group (vs. low response group) had a lower memory composite and more education. Table 6 shows the adjusted models (controlling for other variables in the model, gender, race, and MMSE). Controlling for other variables in the models, higher baseline memory composite was most associated with being in group 3 (i.e., low response group). Higher processing speed composite, however, was associated with group 1 (i.e., HVLT group). Older age was associated with group 1. Higher education was associated with groups 1 and 2.

Discussion: On the positive side, the current study did find different patterns of response to memory training: 1) favorable to the HVLT, 2) favorable to RAVLT, and 3) not favorable to any memory test. There are differences between HVLT and RAVLT, with the former using semantically related words and the latter using unrelated words. Did some of the strategies taught in the intervention favor one test or another? Since a broad range of strategies were taught, this is unlikely. But different individuals might utilize different strategies when encountered with memory problems (e.g., post-testing).

- Why was higher baseline memory composite scores associated with group 3 (i.e., low response group), whereas lower memory composites were associated with groups 1 and 2 (i.e., HVLT and RAVLT groups)? The authors suggest that those in groups 1 and 2 might have had more room to improve, whereas those in group 3 were closer to the ceiling (i.e., had little room to improve).
- Why was higher processing speed scores associated with group 1? The authors suggest that higher processing speed might allow participants to enact mnemonic strategies better than those with lower processing speed scores.
- Not surprisingly, higher education was associated with more responsiveness to intervention (e.g., groups 1 and 2).

Limitations: Delayed recall was not assessed (so results primarily speak to “learning” or “immediate memory”), very few true non-responders (10%), unknown if any subjects had MCI, mostly female, mostly Caucasian, and highly educated sample (so questionable generalization), no memory pattern was tied to Rivermead’s paragraph recall, no visual memory measured used, responsiveness over a longer period (1, 2, or 5 years) might have been more interesting, and the processing speed intervention was the most effective in the ACTIVE trial.

- Should you offer cognitive interventions only to those that, based on baseline characteristics, have the greatest likelihood of benefitting from them?
The Metabolic Syndrome and Development of Cognitive Impairment Among Older Women


Introduction: Metabolic syndrome is a collection of cardiovascular disease risk factors and includes obesity, hypertriglyceridemia, low high-density lipoprotein cholesterol level, high blood pressure, and hyperglycemia. Recent literature may indicated that metabolic syndrome may be associated with cognitive impairment.

Purpose: To investigate the association of the metabolic syndrome and its components with the incidence of cognitive impairment in older women.

Methods: 4,895 older women who were participants in the MORE trial were subjects in this study and had no cognitive impairment at baseline. The study participants were from 180 clinical centers in 25 countries. Presence of metabolic syndrome was determined at baseline using the National Cholesterol Education Program Third Adult Treatment Panel guidelines. The Short Blessed Test was used to screen for dementia. Logistic regression was conducted to determine if there was an association between metabolic syndrome and cognitive impairment.

Results: Follow-up was conducted at the end of four years. 181 had cognitive impairment and did not have the syndrome. 497 had the metabolic syndrome and 36 developed cognitive impairment. An association was found with the metabolic syndrome and cognitive impairment. Further research is warranted to determine if screening and close management for the syndrome would diminish the incidence of cognitive impairment.

Treatment of Hypertension in Patients 80 Years of Age or Older


Introduction: It is inconclusive if persons 80 years and older should be treated for blood-pressure reduction and if it would be effective in preventing stroke and other vascular events. In the Hypertension in the Very Elderly Trial (HYVET) pilot study, findings indicated that that treatment for hypertension was associated with a reduction in stroke. There was also a possible increase in death from any cause resulting in that for each stroke prevented, there was one death from a cause other than stroke.

Purpose: The purpose of this study was to determine the relative benefits and risks of antihypertensive treatment for persons 80 years and older.

Methods: This study was conducted in 195 centers in 13 countries in Western and Eastern Europe, China, Australasia, and North Africa. It was a randomized, double-blind, placebo-controlled trial. The inclusion criteria included patients had to be 80 years of age or older with persistent hypertension. The exclusion criteria included contraindication to use of the trial medications, accelerated hypertension, secondary hypertension, hemorrhagic stroke in the previous 6 months, heart failure requiring treatment with antihypertensive medication, a serum creatinine level greater than 1.7 mg per deciliter, a serum potassium level of less than 3.5 mmol per liter or more than 5.5 mmol per liter, gout, a diagnosis of clinical dementia, and a requirement of nursing care.
Instructions for patients to stop all antihypertensive treatment. At that time each participant was given a single placebo tablet to take daily for at least 2 months and to undergo two blood-pressure measurements during each of two visits. If blood pressure measurement were indicative of hypertension, patients underwent randomization to placebo or treatment group. After randomization, patients received either indapamide (sustained release, 1.5 mg) or matching placebo alone. At each visit (or at the discretion of the investigator), if needed to reach the target blood pressure, perindopril (2 mg or 4 mg) or matching placebo could be added. For treatment, the target systolic blood pressure was less than 150 mm Hg, and the diastolic blood pressure was less than 80 mm Hg. Continued monitoring and increasing medication was prescribed as appropriate for control.

**Outcomes:** The primary outcome for the study was any stroke (fatal or nonfatal) which did not include transient ischemic attacks. Secondary outcomes included death from any cause, death from cardiovascular causes, death from cardiac causes, and death from stroke.

**Results:** A total of 4,761 patients entered the placebo run-in phase and 3,845 were randomly assigned to one of the two study groups. Demographic characteristics were similar for the two groups at baseline. More than 90% of the participants were hypertensive at baseline. Patients were followed for approximately 1.8 years. At the end of the trial, 1,882 patients were still undergoing double-blind follow-up, and 220 patients were undergoing open follow-up. So, at the end of 2 years, compared with baseline, the systolic and diastolic blood pressure values obtained had fallen by a mean of 14 mm Hg and 7 mm Hg, respectively, in the placebo group and by 29 mm Hg and 13 mm Hg, respectively, in the treatment group. There was a 30% reduction in the risk of stroke in the active-treatment group compared with the placebo group and a 21% reduction in the rate of death from any cause in the active group. The rate of fatal stroke was reduced by 39%. The benefits of treatment began to be apparent within the first year. When adjusted according to sex, age, baseline systolic blood pressure while seated, and previous cardiovascular disease, the results did not materially change for the end points of fatal or nonfatal stroke, death from any cause, or death from cardiovascular causes.

**Discussion:** Elevated blood pressure is common in persons 80 years of age or older. Findings from the study indicate that treatment with indapamide (sustained release, 1.5 mg), with or without 2 to 4 mg of perindopril, is appropriate for persons 80 years and older.