

Weinberg J, Diller L, Gordon WA, Gerstman LJ, Lieberman A, Lakin P, Hodges G, Ezrachi O. Visual Scanning Training Effect on Reading-Related Tasks in Acquired Right Brain Damage. Arch Phys Med Rehabil 1977;58:479-486.

Design: Randomized clinical trial

Population/sample size/setting:

- 57 right hemisphere stroke patients (mean age 63, male/female not stated) in rehabilitation program in a university setting in New York City
- Eligible if at least 4 weeks post-CVA, no previous stroke, no organic mental syndrome, unilateral brain damage based on exam by neurologist

Main outcome measures:

- Randomized to visual training 1 hr per day for 4 weeks (n=25, mean age 62) or control (n=32, mean age 66)
- Tested before and after trial period on 14 tasks: 4 “primary” tasks of reading mechanics, arithmetic, paragraph reading, and copying, 2 “secondary” tasks of letter cancellation on printed sheet, and 8 “tertiary” neuropsychological tasks
- Neurological exam repeated after trial period by same neurologist who examined at baseline and was blind to group assignment
- No changes in neurological status between baseline and follow-up were noted in either group by neurologist
- Visual perceptual deficits classified as mild (n=34) or severe (n=23), with analysis of results calculated separately for these groups
- Efficacy of treatment measured in 2 ways: (1) statistical significance (p values) of pre-post score differences between groups and (2) pre-post score differences divided by maximum possible pre-post score differences (in %)
- On primary criteria tasks in treatment group, severe cases improved on all 4 measures, and mild cases improved on reading mechanics scale; control groups had no improvement among either mild or severe cases
- On secondary and tertiary criteria tasks as well, treated groups had significantly more improvement than control groups

Authors’ conclusions:

- Even though no improvement in neurological status occurred in either group, treatment with visual scanning training facilitated compensation for neurological deficits
- Scanning training reduced visual drift to the right and corrected neglect of the left part of visual field

Comment:

- Description of intervention is referenced in an institutional monograph not indexed in Medline, making it difficult to determine fully what was done
- Presentation of results in p values only is uninformative in terms of effect size and confidence intervals, which would be preferable

- Some statistical analyses not clear; e.g., chi squares for data that do not seem to be categorical in nature (mentation, visual fields)
- Randomization method not described; allocation concealment not described
- The screening neurological exam included “visual field,” but there is no further description of whether there were field defects in addition to neglect
- In spite of ambiguities of the data, direct threats to internal validity do not undermine the conclusion that scanning can compensate for neglect of the left part of the visual field

Assessment: Adequate for evidence that visual scanning can correct for neglect of the left part of the visual field in right-hemisphere stroke