Dementia Grand Rounds

Memory Training: spaced retrieval

Courtney Ciulla, Laura Litzenberg, and Tanya Ibarra
**Spaced Retrieval (SR): The Approach**

Spaced Retrieval is a technique where the retrieval of information or behavior is practiced at progressively longer spaced time intervals.

Purpose: facilitate the remembrance of important information or behaviors for meaningful periods of time.

Can be used for a variety of memory deficits, including:

- semantic memory
- procedural memory
- prospective memory
- recent episodic memory
approach Variations

- Expanded schedule of delayed intervals (e.g., 15 s, 45 s, 60 s)
- Equal interval schedule (e.g., 10 s, 10 s, 10 s)
- Massed retrieval (e.g., 0 s, 0 s, 0 s)
**Theoretical Basis**

- Effectiveness of spaced retrieval on decreasing eating difficulty and eating dependency compared to Montessori group and a control group. *Results indicated that the spaced retrieval (SR) group had significant improvement in eating ability* (Linn et al., 2010).

- Positive treatment outcomes was found when using SR in various forms (i.e., expanded, equal interval, and massed) for recall of facts and performance of tasks. *Expanded and equal intervals were found to produce superior results when compared to massed* (Balota et al., 2006).

- SR accounts for the patient’s relatively spared procedural memory skills, engages the person diagnosed with dementia without putting too much pressure on their cognitive skills, trial by trial success through reduced error learning, and the therapy is *relevant and meaningful to the person’s life* (Small, 2012).

- Expected outcomes show a retention of learned information ranging from 1 day to several months post SR training. Results also demonstrate improvement in learning, retention, and generalization of trained information/behaviors (Hopper et al., 2005).
Inclusion/Exclusion Criteria

Research-based populations:

- Patients with cognitive impairment due to various types of dementia
  - (Alzheimer's, mixed dementia, vascular dementia)
- Pts with declarative memory impairments from mild to severe
- Pts with ability to participate in structured training
- Pts with sufficient hearing & vision

No evidence based research for populations: amnesia, dementia related to Parkinson's, HIV/AIDS, huntington's chorea, pick’s disease, mild cognitive impairments. The ability to generalize finding to culturally/linguistically diverse populations is also limited.
**How-to (steps):**

- One target stimulus trained at a time (e.g., **semantic**, prospective, episodic tasks)
  - Clinician: “What can you do to remember your grandson’s name?”
  - Client: “I can turn over the picture card. His name is John.”
- If the client gets the target wrong, immediate corrective feedback is given
  - Clinician: “What is your grandson’s name?”
  - Client: Alex?
  - Clinician: “His name is John. What do we do to remember your grandson’s name?”
  - Client: “Turn over the card. His name is John.”
- Go back to the last successfully trained interval (e.g., 10, 20, 30, 50 sec)
- Expand the interval length if the client answers correctly.
Dory is a 75 year old grandmother with moderate Alzheimer’s disease. She often forgets her family members’ names and to take her medication. Dory lives with her daughter who takes care of her. When asked about her future appointments Dory says she doesn’t remember.

Example of SR with prospective memory training

- Intervals (0, 15, 30 sec)
Measuring outcomes

- Patient is trained to use SR for a recall of information/behavior. Recall accuracy during testing periods is the primary outcome measure.
- Scoring method can utilize 0-unable to recall and 1-successful recall.
- For maintenance of skills, booster training can be implemented and provided as necessary. It is a reteaching of spaced retrieval for a behavior/task weeks or months after the initial training in order to brush up on recall skills. Research has shown booster training had a positive outcome for skill maintenance. (Cherry et. al., 2009)
Should we use this approach? YES!!

- Evidence shows that spaced retrieval works
- Use it with booster training sessions to help maintain the skill
- We think spaced retrieval should be used to help train patients to remember family members or important items/events even though their memory may be declining.

Note- possible issue with lack of generalization over a long period of time (limited research concerning generalization of skills)


