COGNITIVELY-STIMULATING ACTIVITIES

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TODAY’S AGENDA

• Cognitive Changes in Aging: What is Typical/Atypical Cognitive Aging?
• Research on Cognitive Intervention Strategies: What Do We Know?
• Practical Suggestions: What to Consider?
• Cognitive Engagement: What Can You Do?
COGNITIVE AGING: What is Typical?

- Occasional forgetting of names
- Occasional difficulty finding words
- Forgetting the date by a few days
- Forgetting to do something
COGNITIVE AGING: What is Atypical?

- Mild cognitive impairment (MCI); dementia
  - Persistently forgetting names of close relatives or common words
- Major change in personality and/or mood
- Difficulty acquiring and recalling information
- Assistance in managing daily activities
Normal Aging: Everyone experiences slight cognitive changes during aging.

Preclinical:
- Silent phase: brain changes without measurable symptoms
- Individual may notice changes, but not detectable on tests
- "A stage where the patient knows, but the doctor doesn't"

MCI:
- Cognitive changes are of concern to individual and/or family
- One or more cognitive domains impaired significantly
- Preserved activities of daily living

Dementia:
- Cognitive impairment severe enough to interfere with everyday abilities

https://www.mind.uci.edu/dementia/mild-cognitive-impairment/
COGNITIVE AGING: Cognitive Reserve Hypothesis

• Concept: The unique structure and function of one’s brain may buffer the effects of neuropathology

• Neural network = synaptic organization/functioning

• Greater cognitive reserve = more efficient utilization of neural network

• More efficient utilization of neural network = cope more successfully with age-related changes

• What are some predictors of cognitive reserve?

Stern, 2002
COGNITIVE AGING: Neuroplasticity

• Concept: the potential for morphological changes in the brain (e.g., new and strengthening neural connections)

• Neuroplasticity plays a role in increasing cognitive reserve

• Repeated exposure to stimuli that promote learning challenges existing neuronal connections to adapt, resulting in a more efficient neural network

• Evidence that neuroplastic changes occur during older adulthood, even when cognitive function has begun to decline
COGNITIVE INTERVENTION STRATEGIES
Cognitive training (CT): exercises intended to improve cognition in a particular domain, measured via standard neuropsychological tests.

Example: ACTIVE study

Consensus of effectiveness:

- May be effective for healthy older adults and adults at risk of developing dementia; improvement on tasks closely related to the trained task (i.e., near transfer)
- Mixed findings for individuals with Alzheimer’s disease; unknown for older adults with depression
- Must address limitations to existing research

Effects of Cognitive Training Interventions With Older Adults
A Randomized Controlled Trial

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Context: Cognitive function in older adults is related to independent living and need for care. However, few studies have addressed whether improving cognitive functions might have short- or long-term effects on activities related to living independently.

Objective: To evaluate whether 3 cognitive training interventions improve mental abilities and daily functioning in older, independent living adults.

Design: Randomized, controlled, single-blind trial with recruitment conducted from March 1998 to October 1999 and 2-year follow-up through December 2001.

Setting and Participants: Volunteer sample of 2832 persons ages 65 to 94 years recruited from senior housing, community centers, and hospital clinics in 6 metropolitan areas in the United States.

Interventions: Participants were randomly assigned to 1 of 4 groups: 10-session group training for memory (verbal episodic memory; n = 711), or reasoning (ability to solve problems that follow a serial pattern; n = 705), or a no-contact control group (n = 706). For the 3 treatment groups, 4-session booster training was offered to a 60% random sample 11 months later.

Main Outcome Measures: Cognitive function and cognitively demanding everyday functioning.

Results: Thirty participants were incorrectly randomized and were excluded from the analysis. Each intervention improved the targeted cognitive ability compared with baseline, durable to 2 years (P < .001 for all). Eighty-seven percent of speed, 74% of reasoning, and 26% of memory-trained participants demonstrated reliable cognitive improvement immediately after the intervention period. Booster training enhanced training gains in speed (P < .001) and reasoning (P < .001) interventions (speed booster, 92%; no booster, 68%; reasoning booster, 72%; no booster, 49%), which were maintained at 2-year follow-up (P < .001 for both). No training effects on everyday functioning were detected at 2 years.

Conclusions: Results support the effectiveness and durability of the cognitive training interventions in improving targeted cognitive abilities. Training effects were of a magnitude equivalent to the amount of decline expected in elderly persons without dementia over 7- to 14-year intervals. Because of minimal functional decline across all groups, longer follow-up is likely required to observe training effects on everyday function.

Ball et al., 2002
COGNITIVE STRATEGIES: Cognitive Training

A note on “Brain Games”

• A billion-dollar industry; activities intended to train core cognitive processes

• Exaggerated claim: training will lead to broad improvement in many different mental activities

• More research is needed to support claims of effectiveness
COGNITIVE STRATEGIES: Modifiable Health Factors

• Diet:
  • Antioxidant-rich foods
  • MIND diet

• Exercise
  • Aerobic exercise
  • Do what is right for your own body!

• Mood
  • Pharmacotherapy/psychotherapy
  • Engaging in fulfilling activities
  • Stress management
COGNITIVE STRATEGIES: Skill Building Activities

- Leisure activities have been positively associated with memory performance and may be beneficial for cognitive aging and delaying the onset of dementia
  - Chess
  - Musical instruments
  - Theater training

Noice et al., 2004; Richards et al., 2003
COGNITIVE STRATEGIES: Socializing

• Having a socially integrated lifestyle is associated with reduced risk of dementia in older adulthood
• Social support has been positively associated with psychological, cardiovascular, endocrine, and immune system health
PRACTICAL SUGGESTIONS: WHAT TO CONSIDER?
PRACTICAL SUGGESTIONS

• There is no “right” or “wrong” activity
• Choose activities that are stimulating but not overly challenging (in order to continue your engagement)
• Choose activities that bring you joy/fulfillment
• Consider activities that involve more than one cognitive intervention category
• Choose a novel activity
• Re-engage in an activity that you used to enjoy
• Quality over quantity
COGNITIVE ENGAGEMENT: WHAT CAN YOU DO?
COGNITIVE ENGAGEMENT: Switch It Up

- Embrace your hobbies and strengths
  - If it’s been a while, revisit it!
- Challenge your brain by modifying your preferred activity
  - If you like to read non-fiction, try a science-fiction novel
  - If you like to play guitar solo, try harmonizing
  - If you like to draw, try painting
COGNITIVE ENGAGEMENT: Lifelong Learning

• Learning in the community:
  • Osher Lifelong Learning Institute at the University of Washington (OLLI-UW)
  • Community College (Central, North, South)
  • Parks and Recreation (YouTube channel)
COGNITIVE ENGAGEMENT: Lifelong Learning

• Online:
  - Coursera
  - edX
  - Harvard University
COGNITIVE ENGAGEMENT: Music and Culture

- Google Arts and Culture
  - American Museum of Natural History
- National Nordic Museum
- The Museum of Flight
- Burien Actors Theatre:
  - Script Club
  - Live Plays
- Seattle Symphony Live
- Seattle Opera
COGNITIVE ENGAGEMENT: Utilize Your Library

- SPL online resources
  - Online book clubs
  - SilverKite art classes
  - Explore your genealogy
- Need a library card?

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COGNITIVE ENGAGEMENT: Make It Social

- Accountability!
- Join a group
- Do an activity with a friend
- Learn a skill, teach a skill
- Conversation starters
- Volunteer
TAKEAWAY

• It’s never too late to learn
• Think holistically
• Set achievable goals
• Enjoy yourself
THANK YOU!