Today’s Presentation

• We will take a very holistic and interconnected approach, discussing a myriad of factors that affect cognition as we age (e.g., cognitive exercise, physical exercise, social support, and nutrition).
• We will discuss numerous and practical ways older adults can maintain their cognitive and social well-being.
• Bottom line is that numerous behavioral and lifestyle interventions seem to have a significant impact on the likelihood of developing dementia.
A Holistic Approach

Besides age, what determines whether or not we have good memory abilities in older adulthood?

• Genetics (~50%)
• Cognitive stimulation
• Other health conditions (e.g., diabetes, obesity, depression)
• Stress (Stawski et al., 2006)
• Good sleep (Campbell et al., 2005)
• Social support and engagement
• Proper nutrition (Karr et al., 2010)
• Adequate physical exercise (Nagamatsu et al., 2012; McGough et al., 2011)

Dementia Prevalence is Declining

• Matthews et al. (2013) reported in the journal *Lancet* that dementia rates among people 65 and older have plummeted by 25 percent over the past two decades, to 6.2 percent from 8.3 percent, a trend that researchers say is probably occurring across most developed countries. Why?
Dementia Prevalence is Declining

- Possible reasons for the 25% reduction:
  - Controlling cardiovascular risk factors
    - Cholesterol
    - Blood pressure
  - Better education and possibly more cognitive stimulation
  - Greater awareness of the importance of physical exercise

2013 Article in the Journal *Neurology*

- Wilson et al. found that people who participated in more mentally stimulating activities had a slower rate of decline in memory. Mental activity accounted for nearly **15 percent** of the difference in decline beyond what is explained by brain changes associated with dementia.
Computer Based Cognitive Stimulation Led to Significant Improvements

• Lee et al., (2013) published a paper in PLOS ONE describing the results of an 8 week (24 session) computer training intervention relative to a wait list control group. Significant improvements in:
  – Immediate memory
  – Attention
  – Visual spatial memory

More Empirical Evidence for Memory Enhancement

• Participants in 7 different communities were tested on many different memory and mental tests. Then 1/2 of the participants engaged in the cognitive enhancement program and the other 1/2 (the control group) did not. Three months later all participants were retested on the same tests. Changes over the three months were analyzed.
Memory Ability Increased after Three Months of Cognitive Enhancement Training

Empirical Evidence for Memory Enhancement

• “If older adults can maintain their cognitive ability, they will require less care and possibly delay or even eliminate the need to go to a nursing home. Cognitively stimulating activities may also postpone symptoms of dementia, which could also delay the need for more intensive care.”

Dr. Winningham, Journal of Mental Health and Aging
Cognitive Stimulation

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Great Resources

• www.robwinningham.com

Click on “Crossword Puzzles Are Not As Good as Sudoku Puzzles…” to download mini-sudokus and get access to hundreds of 9 X 9 puzzles.

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Constellations

How many constellations can you find in this puzzle?

<table>
<thead>
<tr>
<th>Aries</th>
<th>Auriga</th>
<th>Boötes</th>
<th>Cetus</th>
<th>Cetus</th>
<th>Draco</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aql</td>
<td>Aqr</td>
<td>Eridan</td>
<td>Piscis</td>
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<td>Aries</td>
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</tr>
</tbody>
</table>
Cartoon Captions
Dr. Rob Winningham

Instructions:
Cut the captions off the bottoms of the cartoons. Give participants the cartoons and captions and ask them to match them up. Adjust the difficulty level varying the number of cartoons and captions to match up. (Three cartoons are easy and six cartoons are difficult.) Encourage people to work in groups if you want to facilitate some fun social interaction. For a creative challenge, ask people to write their own captions.

“I'm taking a break, put this on and fill in for me”

“He's such a bore.”

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Mental Rotation Exercise
Dr. Rob Winningham

Which of the shapes below the line is a rotated image of the shape above the line? Mirrored or similar images do not count. Tip: Try to use the process of elimination to narrow down your options.

1.

2.

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Proper Nouns A to Z

Dr. Rob Winningham

Fill in each blank with a man’s first name that begins with that letter of the alphabet. (Clue: Do you know anyone named Xavier or Yanick?)

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z

Now, what was his name?

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Trail Making Activity
(Spell EARTH)

Dr. Rob Winningham

Connect the circles in ascending order. Begin with number 1 and alternate between numbers and letters to spell “EARTH.” For example, connect 1-E-2-A-3-R, etc. Keep your pencil on the paper and work as quickly as you can.

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Cognitive Stimulation

- iPads – Many high quality cognitive stimulation apps.
Recommended Apps for Cognitive Stimulation

• Fit Brains
• Lumosity
• Tetris
• Sudoku2
• Memory Block
• Stroop Effect
• Visual Attention
• Brain Lab

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Recommended Apps for Cognitive Stimulation

• Word Search+
• Word Jigsaw
• Brain Challenge
• Words Chain Challenge
• Chain of Thought
• This is to That
• Watch That!

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Apps for Cognitive Stimulation

Do you have other app ideas?
– Please post them on the website www.robwinningham.com
– Under the post titled “Apps for Cognitive Stimulation”
– You can also find much more information about our experience using iPads and even download a powerpoint file

Exercise and Cognition

• Colcombe and Kramer (2003) reported the results of an 18-study meta-analyses on the effects of exercise on cognition.
• They found that, on average, exercise programs lead to a .5 standard deviation increase in cognitive abilities (e.g., I.Q. of 100 versus 108).
Exercise and Cognition

• Kramer et al. (2001) found that participating in a six month walking program led to increased attention in 60-75 year old adults.
• Colcombe & Kramer (2003) found that executive functioning improved more than straight memory functioning.
• The ability to pay attention to relevant stimuli is correlated with cognitive ability in older adults. It appears that exercise affects this ability.

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Exercise and Cognition

- Scarmeas et al., (2009) found that older adults (mean age 77 years) who were in the top third in terms of getting physical exercise were 61% less likely to get dementia.

What type of exercise is best?

- A mixture of aerobic and strength (or resistance) training is best.
What type of exercise is best?

• Liu-Ambrose et al. (2010) reported that either once-a-week or twice-a-week resistance training sessions for 12 months led to improvements in older adults’ cognition and attention.
  – 11% improvement for once-a-week
  – 13% improvement for twice-a-week

What type of exercise is best?

• Nagamatsu et al. (2012) found that twice a week resistance training in 70 to 80 year old women, with Mild Cognitive Impairment, led to significant improvement in attention and memory ability.
Nutrition and Cognition

- Fats
- Antioxidants

“Good Fat”

- Omega-3 fatty acids or “good fat” has been linked to improved cognitive functioning in older adults.
- Fish, nuts, olive oil, canola oil, and green leafy vegetables are high in Omega-3 fatty lipids.
Research

• Research has found a positive correlation between Omega-3 fatty acids levels (e.g., DHA) and cognitive functioning in older adults.
• Individuals with dementia often have lower levels of DHA than non-demented controls.
• The more fish people eat, the less likely they are to show signs of Alzheimer’s Disease.


Albanese et al., (2009) studied 15,000 people in Latin America and Asia found that those who ate fish nearly every day were 20% less likely to get dementia as compared to those who ate it only a few times a week. Those that ate fish a few times per week were 20% less likely to get dementia than those who rarely ate fish.
Research

• Recent research has also shown that fish oil tablets can decrease the number of depressive symptoms in people diagnosed with major depression. Some studies have found that fish oil tablets are as effective as modern antidepressants.

Research

• The omega-3 fatty acids might reduce inflammation in the brain. Inflammation might be one of the causes of Alzheimer’s disease.
• It also may be that myelination of the axon is affected by our dietary intake of fat.
Myelin Increase the Speed and Efficiency of Neuronal Transmission

Social Engagement is Stimulating

- July, 2008 - Berkman and colleagues reported findings that showed older adults who are most socially engaged have the least memory problems.
  - Researchers controlled for age, health, and gender
  - Those with the least formal education had the greatest gains from social engagement
Social Engagement is Stimulating

“The working hypothesis is that social engagement is what makes you mentally engaged,” said Lisa F. Berkman, the study’s senior author and director of the Harvard Center for Population and Development Studies. “You can’t sit and withdraw if you’re constantly talking and working on things and figuring out problems in your daily life. It’s not just completing a crossword puzzle, it’s living your life.”

From: http://well.blogs.nytimes.com/2008/06/04/socializing-appears-to-delay-memory-problems/

Summary

• Participation in cognitively stimulating activities is associated with decreased likelihood of developing dementia.
• Cognitively stimulating activities may delay the need for more intensive care.
• Proper food and exercise is good for the brain and memory.
• Social support and social engagement is important for physical, cognitive and mental health.
Contact Information

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You can find cognitive stimulating activities, training opportunities, and other resources at:
www.robwinningham.com

References


References


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References


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