

REHAB SUMMIT

304: Interventions for Co-Morbidities & Reversible Factors Affecting Cognition/Memory Function

Maxwell Perkins, MS, OTR/L

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304: Interventions for Co-Morbidities & Reversible Factors Affecting Cognition/Memory Function

Maxwell Perkins, MS, OTR/L

Financial: Maxwell Perkins is an independent consultant. He receives a speaking honorarium from PESI, Inc.
 Non-financial: Maxwell Perkins is a member of the American Occupational Therapy Association.

Co-Morbidities/Reversible Factors Affecting Cognitive/Memory Function and How to Intervene



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“Materials that are included in this course may include interventions and modalities that are beyond the authorized practice of mental health professionals. As a licensed professional, you are responsible for reviewing the scope of practice, including activities that are defined in law as beyond the boundaries of practice in accordance with and in compliance with your professions standards. “

Disclosure

- I receive no financial or any other type of incentive from any of the resources/products discussed in this presentation.

Objectives

At the completion of this seminar, you should be able to:

1. Name Six conditions/co-morbidities that negatively impact an individual's cognitive/memory function.
2. List three reversible conditions (often undiagnosed) that can negatively affect an individual's cognition and memory.
3. Identify the number one intervention strategy to address cognitive/memory deficits and co-morbidities.

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Each of these ingredients has been shown to protect and nourish the brain in different ways, including short-term and long-term memory, clarity, and alertness. Combined, they are an ideal blend.

Fit Brains - A Rosetta Stone Company

Lumosity Sharpbrains
Dakim Brain Fitness Positscience

BrainTrain
CHANGING THE WAY PEOPLE THINK

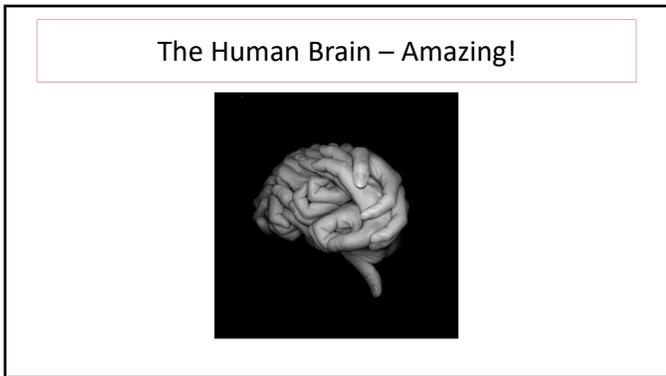
Get a Brain Check-up

- 1 REGISTER FOR A BRAIN CHECK-UP
- 2 ANSWER QUESTIONS ABOUT YOU AND YOUR LIFESTYLE
- 3 GET YOUR BRAIN HEALTH INDEX (BHI) SCORE AND REPORT
- 4 USE YOUR DASHBOARD: TRACK PROGRESS
- 5 TEST YOUR MEMORY

What do I get?
You will get your personal:
- Brain Health Index (BHI) Score
- Individual Pillar Scores
- Brain Health Guide
- Memory Score
- Dashboard
- Recommendation and Tips
Designed For You

www.healthybrain.org
Cleveland Clinic





Types of Dementia

- **Acute**
 - Delirium “WHAT DO I NEED TO KNOW”
 - Depression “WHAT DO I NEED TO KNOW”
- **Chronic**

“A special emphasis should be directed toward reviewing medications, both prescribed and over the counter, because they are responsible for 22% to 39% of the deliriums in older adults.” Insel, K. 2002

Three Triads you NEED to Remember:

Delirium

Risk increases with age

Fluctuating course

1/3 of patients over age 70 who are admitted to a hospital

2/3's of older people after major surgery

Up to 63% after hip replacement surgery

Healthinaging.org



Delirium

Present in 1/2 of pts. Transferred to a nursing home

Present in 2/3's of patients who are residents of nursing homes

Many of the characteristics are the same as dementia.

Older adults often mistakenly diagnosed with depression

Ethnic Differences

- African Americans: 2 X's greater
- Hispanics: 1.5 X's greater
- Japanese Americans: Lowest of all groups



Increased missed dx.



Genetic pre-disposition

Alzheimer's Association
2019



Known Risk Factors (does not guarantee)

Age	BMI/Obesity
Diabetes	Depression
Hypertension	Decreased Physical Activity
Educational Level	Social/Cognitive Engagement
Smoking	Vision
Mild Cognitive Impairment	Cardio vascular disease
Family History	TBI: Mild; Moderate; Severe

TBI 

Increases the risk of overall dementia.

Risk increases with number of TBI's sustained

Mild TBI is associated with a two-fold increase in the risk of dementia diagnosis.

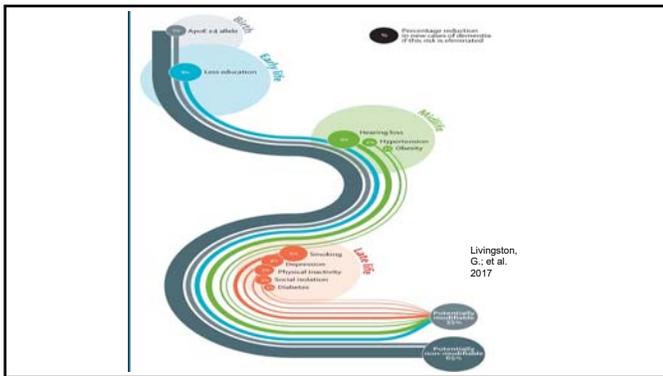
Alzheimer's Association 2019

Thought

1/3 of Alzheimer's disease cases worldwide are estimated to be attributable to seven (7) modifiable factors:

- Low Education
- Midlife Hypertension
- Midlife Obesity
- Diabetes
- Physical Inactivity
- Smoking
- Depression

Ngandu, T.; et al. 2015





Established link with low Vitamin D concentrations in elderly adults and increased risk of cognitive decline

Littlejohns, T. et al. 2014

Diabetes

- Age 's  risk
- Duration
- Mid life = 19% greater cognitive decline over 20 yrs
- Deficits:
- Better metabolic control = improvement/less cognitive decline

Rawlings, A. M. et al. 2014

Obesity

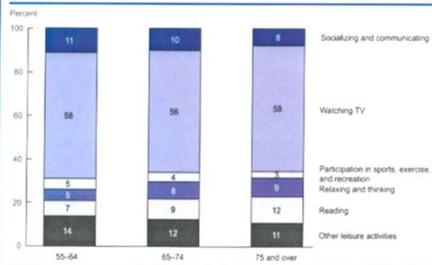


Roughly 1/3 of Americans are obese, BMI of 30 or higher.

Direct link:

Obese people: higher risk of heart disease and diabetes (significant because?)

Percentage of total leisure time that people age 55 and over spend doing selected leisure activities on an average day, by age group, 2010



Older Americans 2016: Key Indicators of Well-Being. National Ctr. For Health Statistics

Physical Inactivity 50 and Older

- No activity beyond baseline ADL's:
 - 25.4% of adults aged 50-64
 - 26.9%: 65-74
 - 35.3%: 75 or older
- Women vs. Men????
- Whites vs. Hispanics vs. Blacks???
- Decreasing levels of education
- Increasing BMI's

Watson, K. B. et al. 2016

I Don't Really have Dementia!

- Meta-analysis:

"9% of people with dementia-like symptoms did not in fact have dementia, but had other conditions that were potentially reversible."

Alzheimer's Disease Facts and Figures. Alz.org

Reversible Causes of Memory Change:

- Stress
- Sleep disorders
- Depression
- Metabolic disease, such as thyroid disease
- Alcoholism
- Vitamin B12 deficiency
- Infections
- Medications (prescribed and OTC)
- Low Potassium/Sodium





Legality of cannabis in the United States: Legal Legal for medical use Legal for medical use, limited THC Content Prohibited for any use
[Creative Commons Attribution-Share Alike 2.5 Generic license.](#)

Cannabis Use

- Most popular illicit drug in the U.S.
- Most prevalent drug after alcohol used by adults age 50 and older
- Ages 55 and over:
- Males vs. Females
- Most common condition for use? _____
- Medicare D data: Access to cannabis = 's ↓ in use of conventional pain medications.

Cannabis Use

- **No evidence to support or refute: Depressive disorders.**
- **Moderate evidence:**
There is impairment in the cognitive domains of learning, memory, and attention (acute cannabis use)
- **Limited evidence: Sustained abstinence from cannabis use and:**
Impairments in the cognitive domains of learning, memory, and attention

Cannabis Use

- **Recent users demonstrate worse neurocognitive functioning than previous users in?**
- **___ day period for recovery to baseline? LT effects on EF's?** Thames, A. D. 2014
- **Substantial evidence:** Increased risk of motor vehicle crashes
- **Substantial evidence:**
effective treatment for chronic pain in adults.

Cannabis Use

- **Limited evidence that cannabinoids are ineffective treatments for improving the symptoms associated with dementia, but:**
small number of patients in studies
study design and reporting
 - **Long term effects of use on cognition (what do you think?)**
- Han, B. H. 2016
National Academies of Sciences, Engineering and Medicine. 2017

Cannabis Use

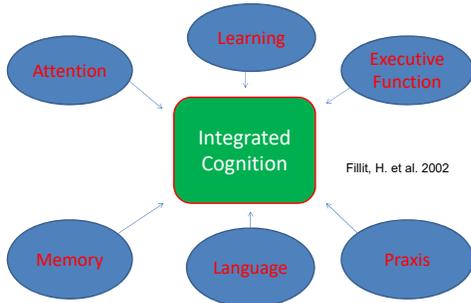
The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendations for Research

- A Report of the National Academies of Science, Engineering, and Medicine. 2017

<http://www.nap.edu/24625>

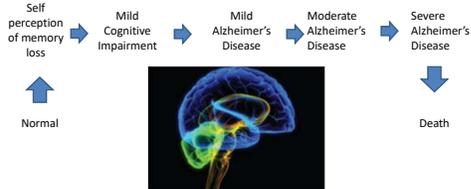


Cognition



Memory/Cognitive Decline

"With age comes the increasing likelihood of developing memory loss."



Small, G. 2002



Disturbances

- Common among persons with AD – up to 44%
- Sleep Apnea/Obesity
- Depression
- Institutionalized older adults
- Effects executive function (Blackwell, T., et al. 2014)
- Women: increased odds of MCI/Dementia
- Sleeping quality in the HC setting

Sleep Hygiene:



"Sleep hygiene may be described as practicing behaviors that facilitate sleep and avoiding behaviors that interfere with sleep" (Riedel, 2000)

Sleep Disturbances – Intervention

SLEEP DIARY (COMPLETE FOR SEVEN CONSECUTIVE DAYS)

NAME:	Date						
Day of week:							
Time I went to bed last night:							
Time I woke up this morning:							
Last night, I fell asleep:							
Easily:							
After some time:							
With difficulty:							
# of hours slept last night:							
I woke up during the night (yes/no):							
# of times:							
# of minutes:							
My sleep was disturbed by: (ex. noises, lights, pets)							
Medications taken last night:							
Medication:							
Time taken:							
How awake did I feel when I got up this morning?							
1- Wide awake							
2- Awake but a little tired							
3- Sleepy							

Complete the following questions at the end of the day:

	Date						
Number of caffeinated drinks (coffee, tea, cola)							
Time I had them (include am/pm)							
Number of alcoholic drinks (beer, wine, liquor)							
Time I had them (include am/pm)							
# of naps taken:							
Length of nap:							
Time taken:							
In the 2-3 hours before going to bed, I consumed:							
Alcohol:							
A heavy meal:							
Caffeine:							
Smoked:							
I exercised today (20 minutes or more) Yes/No							
Time of exercise (AM/PM)							
How sleepy did you feel during the day today? (Record Number)							
1- So sleepy had to struggle to stay awake during much of the day							
2- Somewhat tired							
3- Fairly alert							
4- Wide Awake							

Good Sleep Hygiene

- Ideas?
- Exercise/aerobic
- No heavy meals/decrease liquids
- Relaxation techniques at bedtime
- Caffeine, nicotine and alcohol
- Get out of bed if don't fall asleep
- Reading, watching TV and conversation
- Light on E-reader/blue light
- Snoring: Prop up/avoid back
- Get out of bed when you wake in the am

Good Sleep Hygiene

- Dark room
- Cool room
- Social and physical engagement
- Medication review
- No clocks in bedroom
- Sound machine
- Fan
- No cell phone
- Mattress
- App: "CALM"
- Other Ideas?

Three Triads you NEED to Remember:

Depression

Depression

- Late life depression = 's?
- Normal part of aging: Yes/No
- Effects ___% of patients with a chronic illness
- Major cause of additional disability/decreased quality of life, ADL independence
- Older white males and suicide



Depression Stats

- What % of people with depression initiate treatment?
- Men vs. Women occurrence?
- Men vs. Women initiating treatment?
- Younger vs. Older Adults initiating treatment?
- Asians, Blacks and Hispanics initiate treatment more/less than Whites?

Waltzfelder, B. et al. 2018. Treatment initiation for new episodes of depression in primary care settings. Journal of Gerontological Medicine. Published online: 2/8/2018

Depression - Treatment

- “Has anyone considered if the person has depression?”
- Use of the Geriatric Depression Scale
- ↓ in depression can = Reversal of its consequences: improved cognition/memory

Two Major Studies

- Have laid the foundation for EBP strategies for improvement in cognitive function in the elderly
- Consistently cited



ACTIVE Study

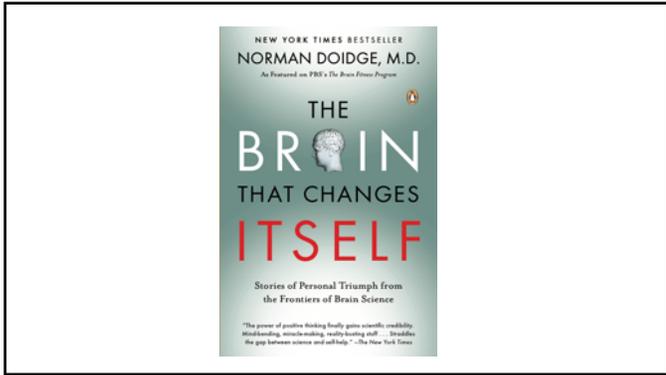
- **Advanced Cognitive Training for Independent and Vital Elderly**
 - 2832 participants (largest study)
 - Age > 65 (mean 73.6)
 - Training consisted of: Memory; reasoning; speed of processing
 - Follow-up over 5 years
 - **Results:**
 - Cognitive training improves cognitive function
 - Improvement lasts up to 5 years
 - Improvements in cognitive function had ↑ IADL Indep.
- Willis, S. et al. 2006

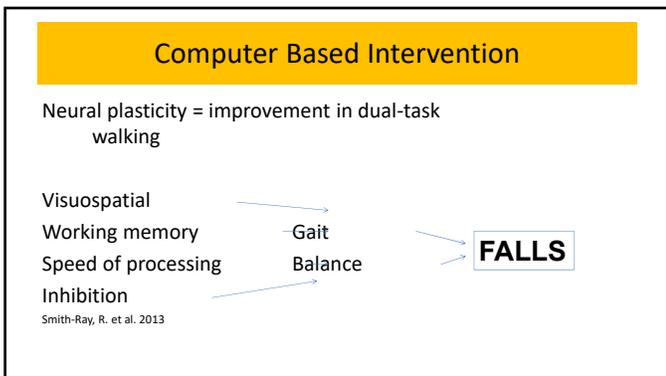
ACTIVE Follow-up Rebok, G. et al.; 2014

- 10 year re-assessment
- 44% re-assessed, average age 82
- Results demon. Continued positive effects on cognitive abilities and IADL function.

Computerized Cognitive Rehab

- Promotes overall cognitive function, memory, attention, executive function and visual-spatial ability in healthy adults Chiu, H. et al. 2017
- Moderate effect on overall cognitive function and executive function Chiu, H. et al. 2017
- Positive effects on: ???
- Must be responsive/intuitive
- Must cover a variety of cognitive domains
- Benefits of training in groups
- Most effective: Min. 3 X's week; min. 8 weeks; and min. of 24 sessions. Chiu, H. et al. 2017





Speed of Processing Training

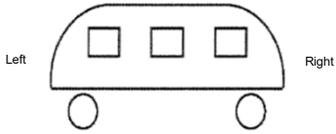
Shown transfer to:

- Positively impact IADL's
- Result in safer and prolonged driving mobility among older adults (i.e. on road driving safety).

Associated with maintained health-related quality of life.

Involves adaptive training/learning edwards, J., et al. 2017

In which direction is the bus pictured below going?



The only possible answers are "Left" or "Right"

Secondary Events

- Hearing loss: _____ most common chronic condition reported by older adults
 - Estimated prevalence of significant hearing impairment among people 60-69 is approx. _____%
 - People 70-79, the prevalence increases to _____%
 - Men or Women are more likely to have hearing impairment?
- Lin, et al. 2011
- Less than 15% use hearing aides

Hearing Loss

- Impact on cognitive screens
- Cog. Impairment is positively correlated with HL
- Rate of cog. Decline is faster (30%-40%)
- Social Isolation
- Cognitive load 
- Physicians are key players

Sturdivant, G. 2016
Alattar, A., et al. 2019

Vision

Recent study in JAMA:

“Visual Impairment influences cognitive function through affecting activities older adults are involved (*the sensory loss consequence theory*)”

“Vision is the dominating factor of the vision-cognition association.”

Zheng, D., et al. 2018

Communication Strategies/Older Adults

Communicating with Older Adults: An Evidence-Based Review of What Really Works.

Gerontological Society of America

www.geron.org

Patient Handouts

- Readability/comprehension level
 - Large print
 - Written at a 5th/6th grade level
 - Don't worry about offending
 - One idea per sentence
 - Don't over utilize illustrations
 - Only the “desired” way to act should be shown
 - Ask questions
 - SMOG readability formula: determines grade level
- Hoffmann T, Worrall, L. 2004 (OT and SLP)

Three Triads you NEED to Remember:

Depression

Physical Activity

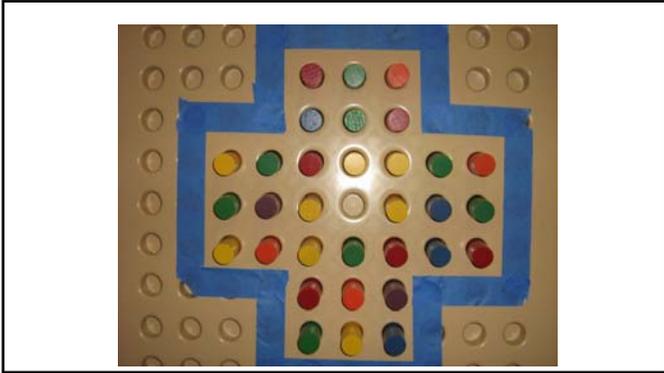
Delirium

#1?

Physical Activity

- Protects against and improves Cog. impairment: **Evidence Based:**
 - Alters synaptic function and # of synapses
 - Restores Neurogenesis
 - Improves Hippocampal volume
 -  Neurotrophin levels
 - Inflammation and immune function 
 -  Affects circadian rhythms
 - Improves cog. in people with AD (Phillips, C. 2016, PT based)
- Overall is a marker for a healthy lifestyle





Excellent Resource/Education Materials

Staying Sharp:

- Successful Aging and Your Brain
- Memory Loss and Aging
- Quality of Life
- Learning Throughout Life
- Depression

NRTA (AARP's Educator Community) www.aarp.org/nrta
The Dana Alliance for Brain Initiatives www.dana.org

Brain Health As You Age: Key Facts and Resources 2014

- Alcohol Use
- Alzheimer's Disease
- Brain Injuries
- Dementia
- Depression
- Diabetes
- Eating Right
- Exercise and Being Active
- Health Screenings
- Healthy Aging
- Heart Health/High
- Blood Pressure
- Medicines
- Memory
- Research on Brain Health
- Sleep
- Sleep Apnea
- Smoking
- Staying Connected
- Stroke
- Additional Resources



70 Ideas for Brain Stimulation

- the ordinary in different and new ways.
- Learn new card games and play with friends on a regular basis
- Play Sudoku
- Use your non-dominant hand to brush your teeth and to eat a meal with
- Shop at a different grocery store chain than the one you normally shop at
- Play Scrabble
- Learn a new language
- Learn to eat using chop sticks
- Do craft projects you have never done before

- Go to museums
- Try following a recipe to cook something you have never cooked before
- Play Boggle
- Watch foreign language movies with subtitles
- Assemble 500+ piece puzzles
- Count backwards from 100 by 7's or any odd number combination, try doing as you walk
- Say the alphabet backwards, try doing as you walk
- Take a walk and try to name something you see along the way using every letter of the alphabet
- Don't always rely on a calculator, do math calculations the old-fashioned way

- Using the alphabet, name an animal for each letter.
- Learn to juggle
- Go to musicals/plays
- Take classes at a community college
- Attend lectures on topics of interest
- Practice doing Anagrams
- Drive a different route(s) to frequent destinations
- Join a book club
- Do word find/search pages
- Volunteer
- Take an art class
- Practice writing lists/letters using your non-dominant hand

- Learn to use a smart phone
- Play video games
- Read magazine articles and then write down as many facts as you can remember from the articles
- Take a walk/exercise to increase the blood flow to your brain
- Supporting yourself, practice standing on your non-dominant leg while lifting your dominant leg off the floor
- Do ring toss/darts using your non-dominant arm
- Memorize phone numbers you now rely on your smart phone to remember for you and practice dialing them from memory
- Learn sign language

- Take a dance class
- Turn off the GPS and use a map or write out the directions
- Don't rely on a grocery list, try recalling all of the items needed from memory
- Use a computer based cognitive training program
- Take online courses
- Practice meditation and Yoga
- Take an art class
- Eat based on a Mediterranean Diet
- Take a cooking class
- Make a list (at one time) of 100 things (ex. 100 things I am grateful for, 100 things I want to do before I die, etc.).

- Go barefoot
- Spell words backwards (ex.) stimulation = noitalumits
- Completely rearrange your kitchen
- Learn to play a musical instrument
- Teach yourself Origami
- Keep a journal and at the end of the day try to record everything you can remember from that day
- Eat at various ethnic restaurants and try dishes you are not familiar with
- Learn about the brain, the parts, which part does what, etc.
- Make a list of all the Homonyms you can think of
- Learn to knit or crochet

- Have someone write words of different lengths on index cards. Hold a card up to a mirror and try to determine what the word is as quickly as possible
- Try the games "Operation and/or Jenga." When you are able to do with your dominate hand then use your non-dominate hand.
- Download or purchase a book of "connect the dots" Try doing them backward (highest to lowest number)
- Complete an "adult" coloring book
- Learn the 206 bones in the human body
- Take a wine tasting class
- Re-arrange your desk at work moving everything around and into new locations

- Buy a "brain games" book and work through the various brain games
- Play "Finding Waldo" it is just not for kids
- Go to a farmer's market and make it a point each week to try something you have never tried before.
- Purchase a "Hoop N Loop" once you become proficient with your dominant hand use your non-dominant hand
- Host a dinner party
- Other Ideas?

Continuing Education Credits

Access the Rehab Summit Evaluation on August 1st:

- An email will be sent to your registered email address
- An evaluation link will also be available on RehabSummit.com

Once you have completed the evaluation, you can choose to print, download, or email the certificate for your records.



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