Healthy Habits and Modifiable Risk Factors for Cognitive Decline: What the Research Tells Us

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Outline

1. Making sense of medical research
2. Modifiable risk factors for dementia
3. Affecting change in ourselves and others to modify dementia risk factors

Reporting of medical research

Can sometimes be:
– Contradictory
– Difficult to know how to apply
– Mischaracterizing
– Confusing
Chocolate – BAD!

Chocolate – GOOD!

Chocolate questions?

- What can I trust?
  - Study quality?
  - Reporting quality?
- So, is chocolate good or bad?
- Do the benefits outweigh the risks?
- How much chocolate is okay?
- If I eat enough chocolate can I prevent x, y, or z?
Is Dementia Risk Modifiable?

Framingham Heart Study

Incidence dementia per 100


Modifiable Risk Factors

Cognitive Decline

Increases Risk

Decreases Risk
Why Does Education help?

- Increased Cognitive Reserve
  - Brain's ability to withstand pathologic changes
- More likely to have cognitively demanding job
- More likely engage in cognitively stimulating activity throughout lifespan
- Linked to socioeconomic status, diet, cardiovascular health

Cognitive Activity

Religious Orders Study
- 801 older adults w/o dementia
- Rated from 1 - 5 on their frequency to participate in cognitively stimulating activities
- Followed from 1994 – 2001
- Outcome
  - Risk of dementia decreased by 33% in those more frequently cognitively active
  - Not explained by education, genetic risk, or medical conditions

Cerebrovascular disease risk factors

- High blood pressure
- High cholesterol
- Diabetes
- Smoking

Vascular Risk Factors

JAMA Neurology study (Gottesman et al., 2017)

Increase in dementia risk
Smoking

- >2X greater risk for developing Alzheimer’s and vascular dementia (Kuusmen et al., 2011)

- People who quit smoking in midlife are not at greater risk (O’Hara et al., 2015)

Exercise and Risk


Individuals who exercised regularly were about half as likely to develop AD during the study periods.


1/3rd lower risk of any type dementia with exercise
Exercise and Risk
Midlife cardiovascular fitness and dementia
- 191 Swedish women
- Cardiovascular fitness in mid-life (Mean age = 50)
  - Low
  - Medium
  - High
- High vs. medium fitness level
  - 88% less likely to develop dementia
  - Age of onset of dementia 9.5 years later

Horder et al. Neurology 2018; 10-1212

Exercise
- Defina et al. (2013) Midlife fitness and dementia
  - ~20,000 community dwelling middle-aged individuals
  - Fitness level
    - Maximal time on a treadmill test at baseline
    - Dementia diagnosis at age >65
    - Highest versus lowest fitness
      - 1/3rd less likely to develop dementia
      - Regardless of history of stroke

Impact of Exercise on Cognition in Early Dementia
Exercise: Other benefits

- Improved balance
- Reduced falls
- Improved mood
- Improved overall health
- Social activity
- Improved daily functioning in dementia (Ston et al., 2017; Ston et al., 2004)

What is a Mediterranean diet?

Not necessarily....

Mediterranean Diet
Mediterranean Diet

- **High:**
  - Vegetables and fruit
  - Whole grains, legumes, nuts, and seeds
- **Moderate:**
  - Fish, poultry, eggs
  - Dairy (yogurt and cheese)
  - Olive oil (extra virgin)
  - Red wine
- **Low**
  - Red, processed meats
  - Saturated fats

**Mediterranean Diet Benefits**

- Cardiovascular risk factors
  - LDL cholesterol
  - Blood pressure
  - Diabetes
  - Obesity
- Improved cognition
- Reduced stroke risk
- Reduced depression
- Reduced dementia risk

**Mediterranean diet vs. Controls - over 4 years**

**Medi Diet: Slowed progression in AD**

Scarmeas et al. Neurology 2007. 69(12); 1084-1093

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**Depression**

- **Baltimore Longitudinal Study on Aging** (Dotson, 2010)
  - 1239 individuals followed over 25 years
  - Number of depressive episodes associated with increased dementia risk
  - 2 episodes of depression = 2x risk

- **Whitehall cohort study** (Singh-Manoux, 2017)
  - 10,308 individuals followed over 28 years
  - Depression in midlife did not predict dementia

- **Individuals diagnosed with dementia**
  - More likely to have depression in the 11 years preceding diagnosis
  - 9 times more likely to have depression in the year before diagnosis

- **Cause or symptom?**

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**“Super Agers” and Social relationships**

Cognitive “super agers” report a higher degree of positive relations with others.
Social Isolation

• Associated with
  – Hypertension
  – Coronary artery disease
  – Depression
  – Cognitive inactivity

• Honolulu-Asia Aging Study (Saczyński, 2006)
  – Increased dementia risk
    • Isolation in late life
    • Decreased social activity from mid to late life

Sleep

Factors increasing dementia risk:
  • Mid-life insomnia
  • Late-life terminal insomnia
  • Late-life long sleep duration

Hearing Loss

• Associated with almost 2x risk for dementia
• Common (32% individuals >55)
• Mechanisms?
  – May not be causative
  • Confounded by microvascular pathology?
  – Increased cognitive load?
  – Contribute to social/mental engagement
  – Citations in lancet article
• Do interventions help???

Modifiable Risk Factors and Mood

<table>
<thead>
<tr>
<th>Cognition</th>
<th>Mood/Well-Being</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise</td>
<td>++</td>
</tr>
<tr>
<td>Diet</td>
<td>++/o</td>
</tr>
<tr>
<td>Social Activity</td>
<td>++</td>
</tr>
<tr>
<td>Cognitive Activity</td>
<td>++/-</td>
</tr>
<tr>
<td>Treating Depression</td>
<td>++</td>
</tr>
<tr>
<td>Sleep</td>
<td>++</td>
</tr>
<tr>
<td>Managing Vascular Conditions</td>
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Lancet Commissions - 2017

- Overall, 35% of dementia risk is believed potentially modifiable

MRF’s aren’t a cure and can’t guarantee prevention of dementia....

...but do offer promise in reducing risk and potentially slowing decline

Okay, so....

1. Exercise
2. Eat healthy
3. Don’t smoke
4. Take care of your heart
5. Stay active
Okay, so…

- Knowing = easy
- Doing = ehh.....

Motivational Interviewing

- Empathic approach to talking with patients/others about unhealthy behaviors
- Explores ambivalence
- Non-judgmental
- Acknowledges stages of change
- Patient takes responsibility for change

Motivating Change

Remember...
- No one likes to be judged
- Decisions to change generally come from within
- We generally maintain behaviors for their positives, not their negatives
Stages of change

1. Precontemplation  Why should I change!
2. Contemplation  Maybe it's time to change!?!?
3. Preparation  How do I change?
4. Action  I'm changing!
5. Maintenance  I will continue. Yay for change!

Basic tips for approaching and assessing for change

- “Do you mind if we talk about ....”
- “Did you know that...”
- On a scale from 1 – 10, how ready are you to ....
  - Three months ago, how ready were you to change?
  - How did you get from a 3 to a 5?
  - If you were a 7, what would that look like?
- Weighing the pros and cons
  - “What are the good things about [current behavior]?”
  - “What are the less good things/bad things?”

Decisional Balance

<table>
<thead>
<tr>
<th></th>
<th>Change</th>
<th>No Change</th>
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<tbody>
<tr>
<td>Benefits</td>
<td></td>
<td></td>
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<tr>
<td>Costs</td>
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### Decisional Balance - Exercise

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<tbody>
<tr>
<td>Reduced risk for cognitive decline</td>
<td>Improved mood</td>
<td>Improved energy</td>
</tr>
<tr>
<td>More time at home in the evenings</td>
<td>Less time for family, reading, hobbies, etc...</td>
<td>Feeling self conscious at the gym</td>
</tr>
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<td>Increased risk for dementia, heart disease, stroke, diabetes</td>
<td>Continue to gain weight; harder to start in future</td>
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**Exercise**

What type? How often? How intense?

- Specific programs still under investigation
- Northey et al. (2018)
  - Meta-analysis of 39 studies
  - Moderate to high intensity > low intensity
  - >45 minutes/session
  - Any amount; better outcomes with greater frequency
  - Aerobic and/or resistance
- World Health Organization – 150 mins/week
Exercise – Getting Started

• Ask your doctor about any restrictions and considerations
• Getting started
  – Gym membership/personal trainer/group exercises
  – Find a buddy
  – Make it fun
• Start small and ramp up
• Set goals
• Be consistent
• Activity log/Record your success

Healthy Change is Often Not a Straight Path

10 WAYS TO LOVE YOUR BRAIN

Visit ksu.org/3steps to learn more.