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Objectives


- Name 2 lifestyle habits that can help maintain and possibly improve brain health.
- Name 3 diets that may lower the risk of cognitive decline.
- Name 3 foods that may have a positive effect on brain health.



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What is Cognitive Decline?

-  Mild cognitive impairment (MCI) is an intermediate stage between normal aging cognitive decline and decline into dementia.
-  MCI can involve problems with memory, language, thinking and judgment that are greater than normal age-related changes.
-  Changes are not severe enough to significantly interfere with your daily life and usual activities.



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What is Dementia?



The loss of cognitive functioning (thinking, remembering, and reasoning) and behavioral abilities to such an extent that it interferes with a person's daily life and activities.



Dementia ranges in severity from mild to the most severe where someone would depend completely on others for basic activities of daily living.

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What is Alzheimer's Disease?



A type of dementia that causes problems with memory, thinking and behavior



Symptoms usually develop slowly and worsen over time



No cure; current treatments aimed at managing symptoms



Greatest known risk factor is increasing age



6th leading cause of death in U.S.



Currently affects 5+ million Americans

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Alzheimer's Disease Facts & Figures

50%


of primary care physicians believe the medical profession is not ready for the growing number of people with Alzheimer's or other dementias

https://www.alz.org/alzheimers-dementia/facts-figures_2020

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Alzheimer's Disease Facts & Figures



16 million
Americans provide
unpaid care for people
with Alzheimer's or
other dementias

https://www.alz.org/alzheimers-dementia/facts-figures_2020


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Alzheimer's Disease Facts & Figures

These caregivers provided
an estimated 18.6 billion
hours valued at nearly

\$244 billion



https://www.alz.org/alzheimers-dementia/facts-figures_2020

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Alzheimer's Disease Facts & Figures

1 in 3
seniors
dies with
Alzheimer's
or another
dementia

It kills more
than breast
cancer and
prostate
cancer
combined

https://www.alz.org/alzheimers-dementia/facts-figures_2020

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Alzheimer's Disease Facts & Figures

Between 2000 and 2018 deaths from heart disease have decreased

7.8%↓

while deaths from Alzheimer's disease have increased

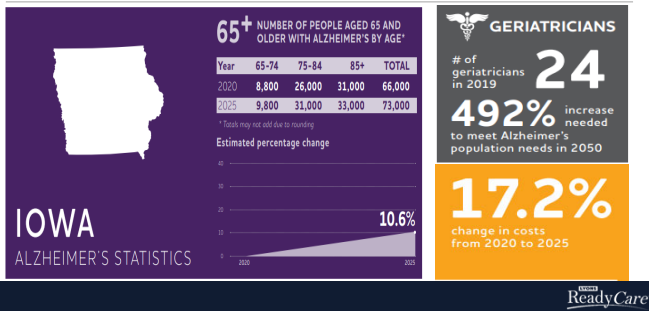
146%↑

https://www.alz.org/alzheimers_disease/facts_figures_2019

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What about Iowa?



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Your Brain

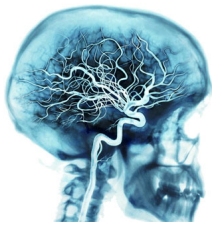
- Most powerful organ
- Weighs about 3 pounds
- Three main parts: cerebrum, cerebellum, brain stem
- The **cerebrum** fills up most of skull. It is involved in remembering, problem solving, thinking, feeling, and controlling movement
- The **cerebellum** controls coordination and balance
- The **brain stem** connects the brain to the spinal cord and controls automatic functions such as breathing, digestion, heart rate, and BP.



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The Brain's Supply Lines



Source: Alz.org

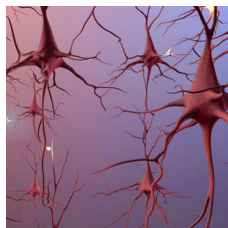
- Your brain is nourished by one of your body's richest networks of blood vessels.
- With each heartbeat, **arteries** carry about 20-25% of your blood to your brain, where billions of cells use about 20% of the oxygen and fuel your blood carries.
- When you are thinking hard, your brain may use up to 50% of the fuel and oxygen.
- The **whole vessel network** includes veins and capillaries in addition to arteries.

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Neuron Forest

- Adult brain contains about 100 billion nerve cells
- Branches connect nerve cells to create "neuron forest"
- Signals traveling through neuron forest form basis of memories, thoughts, feelings
- Neuron is main type of cell destroyed by Alzheimer's disease

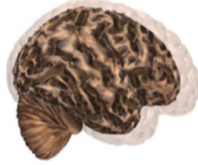


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How Alzheimer's Disease Changes the Brain

- Picture shows brain with advanced Alzheimer's disease overlapping a brain without the disease
- Brain shrinks or shrivels up
- Leads to nerve cell death, tissue loss
- Nearly all functions affected – thinking, planning, and remembering



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What Causes Changes to Brain?

- Scientists unsure what causes cell death and tissue loss in Alzheimer's disease.
- Alzheimer's disease tissue has far fewer nerve cells and connections between nerve cells than a healthy brain.
- Presence of abnormal clumps (amyloid plaques) and tangled bundles of fibers (tau tangles) are some main features of Alzheimer's disease.
- In areas where tangles are forming, nutrients and other essential supplies can no longer move through the cells; cells eventually die.

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How can we slow the advancement of Alzheimer's Disease?

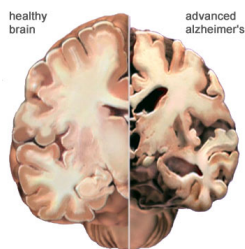


Photo courtesy of Alzheimer's Association

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What can I do to support Brain Health?

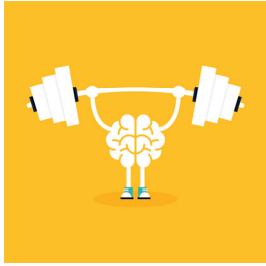


Photo courtesy of The Cleveland Clinic

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Lifestyle Habits



- Engage in regular cardiovascular exercise
- Challenge your brain with formal education, learning a new skill, or playing games such as bridge and Sudoku
- Stop smoking
- Reduce risk factors for cardiovascular disease and stroke
 - Obesity, high blood pressure, diabetes
- Eat a healthy diet that is low in fat and high in produce
- Stay socially engaged
 - Activities with family and friends, volunteer work, interest groups

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Reduce Risk Factors: High Blood Pressure

Association of Blood Pressure Lowering With Incident Dementia or Cognitive Impairment

A Systematic Review and Meta-analysis
JAMA. 2020;323(19):1934-1944.
doi:10.1001/jama.2020.4249

Is there an association between blood pressure lowering with antihypertensive therapy and the incidence of dementia or cognitive impairment?

In this meta-analysis of randomized clinical trials, blood pressure lowering with antihypertensive agents compared with control was significantly associated with a lower risk of incident dementia or cognitive impairment.

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Stay Socially Engaged: Judy's Leaf Casting Class

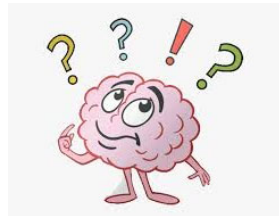


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Eat a Healthy Diet

- Many studies suggest that what we eat affects the aging brain's ability to think and remember.
- Healthy eating has been associated with cognitive benefits in studies, but evidence is not as strong as it is for other interventions like physical activity, blood pressure and cognitive training.
- More research is needed on the impact of diet on cognition.



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Emerging Research

- Diet may affect biological mechanisms, such as oxidative stress and inflammation, that lead to Alzheimer's disease.
- Diet may work indirectly by affecting other risk factors, such as diabetes, obesity and heart disease.
- There may be a relationship between gut microbes and aging-related processes that lead to Alzheimer's disease.



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Diets Lowering Risk of Cognitive Decline



Mediterranean

- Heart and brain health
- Cancer prevention
- Diabetes prevention and control
- Whole grains, hummus, salads, fresh fruits and vegetables, salmon, beneficial fats (e.g. olive oil)
- Moderate consumption of red wine is encouraged

Photo courtesy of iStock.com

Source: www.heart.org ReadyCare

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Diets That May Lower Risk of Cognitive Decline

Dietary Approaches to Stop Hypertension: **DASH**

- Emphasizes consumption of fruits and vegetables, low fat dairy, whole grains, poultry, fish, and nuts
- Limited intake of saturated fat, sweets, and salt
- Endorsed by Dept of Health and Human Services



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Diets That May Lower Risk of Cognitive Decline

MIND

Mediterranean – **DASH** Intervention for Neurodegenerative Delay

- Preventing Alzheimer's disease with brain-healthy foods
- Takes foods from Mediterranean and DASH diets that specifically affect brain health

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Nutritional Components



Photo courtesy of DementiaResearchFoundation.org

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MIND Diet

10 Brain – Healthy Foods

1. **Green leafy vegetables*****: 6 servings/week
2. Other vegetables: 1+ serving/day
3. Nuts: 5-7 servings/week
4. **Berries*****: 2+ servings/week
5. Beans: 3+ servings/week
6. Whole grains: 3+ servings/day
7. **Fish*****: at least 1 serving/week
8. Poultry: 2 servings/week
9. Olive oil: use as main cooking oil
10. Wine: 1 glass/day

***=Emphasis on consumption of these foods

Unhealthy

- Red meat: <4 servings/week
- Butter & stick margarine: <1 tablespoon/day
- Cheese: <1 serving/week
- Pastries and sweets: limit
- Fried or fast food: <1 serving/week

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Mediterranean Diet Research

- Some, but not all, observational studies have shown association with a lower risk for dementia.
- These studies compared cognitively normal people who ate a Mediterranean diet with those who ate a Western-style diet, which contains more red meat, saturated fats and sugar.



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Mediterranean Diet Research

- Observational study of 116 cognitively normal middle-aged adults from the broader NYC area.
- Those who followed a Mediterranean diet had thicker cortical brain regions than those who did not.
- These brain regions shrink in people with Alzheimer's disease, so having thicker regions could mean cognitive benefit.



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MIND Diet Research

- Study followed food intake of 923 Chicago-area seniors.
- Over 4.5 years, 144 participants developed Alzheimer's disease.
- The longer MIND diet patterns were followed, the less risk participants appeared to have.
- MIND diet lowered the risk of Alzheimer's disease by as much as *"53% in participants who strictly followed the diet, and by approximately 35% in those who followed it moderately well."*

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A Day of Mind Diet Meals



Breakfast: 6 ounces Greek yogurt topped with 1/2 cup blueberries and 1/2 cup strawberries; 1 slice whole-grain toast with half an avocado, mashed



Lunch: Sandwich with 2 slices whole-wheat bread, 3/4 cup cooked chicken breast, 1 teaspoon Dijon mustard; Salad with 1 cup romaine lettuce, 1 cup fresh cucumber slices, 1/2 cup tomato wedges, 1 tablespoon sunflower seeds, 1 teaspoon low-calorie Italian dressing



Dinner: Salad with 1/2 cup arugula, 1/2 cup baby spinach, 1 tablespoon vinaigrette dressing made with olive oil; 3-ounce salmon topped with 1 teaspoon tarragon and 1 teaspoon mustard; 1/2 cup couscous; 1/2 cup zucchini and 4 asparagus spears; 1 cup lima beans; 5 ounces red wine

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How Can We Help?



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Nutritional Strategies for Lowering Risk of Cognitive Decline

- Make foods and plate eye-appealing
 - Use color and garnishes
 - A "pretty" plate will entice the resident to eat foods they may not have tried before
- Include a variety of foods in diet
- Promote brain-healthy foods



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Fresh Fruits and Vegetables

- More vibrant the color, the more antioxidants or brain enhancing vitamins and minerals it can provide
- Eat the rainbow, no one color is necessarily better than the other....a Strawberry is as beneficial as an Acai berry



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Bright Colors



- Helps stimulate brain function
- Brightly colored fruits, vegetables, and sauces can be used in activity programs to enhance memory retention and recovery
- Participation in activities provides socialization and interaction with others and staff

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Handheld Snacks and Finger Foods

- Using their hands helps enhance brain clarity by using tactile skills
- Inspires resident to eat more because it is easier to do than using utensils, and makes them feel more independent
- Smaller portion sizes helps add extra calories when the resident doesn't have a large appetite or the energy to consume full portions



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Calorie Dense



- During loss of cognitive ability, there is also a loss of appetite and understanding of hunger and satiety
- It is important to provide options that allow for the most calories in the smallest bite
- Examples: add protein powder to oatmeal, shakes, smoothies; cheese or PB with crackers, hard boiled eggs, cottage cheese
- High calorie high protein supplements may be needed between meals and at HS snack

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Ongoing Research

Not all studies have shown a link between healthy eating and improved cognition.

Overall, the evidence suggests, but does not prove, that following a Mediterranean or similar diet might help reduce the risk for Alzheimer's disease or slow cognitive decline.

Clinical trials are in progress to determine any cause and effect.

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Individual Foods

- No evidence that eating or avoiding a specific food can prevent Alzheimer's disease or age-related cognitive decline.
- Scientists continue to study foods and nutrients:
 - Daily serving of leafy green vegetables may slow age-related cognitive decline
 - Regular fish consumption may slow cognitive decline
 - Consuming too much salt may cause cognitive impairment in mice



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Vitamins and Supplements

- Currently, no vitamin or supplement is recommended for preventing Alzheimer's disease or cognitive decline.
- Vitamin B12 and folate play a part in processes that are essential for brain function.
- A vitamin B12 or folate deficiency may cause memory problems that are reversible with proper treatment.
- Good sources of vitamin B12 include milk, dairy foods, fish, poultry, and eggs.
- Foods rich in folate include orange juice, spinach, romaine lettuce, broccoli, avocado, and enriched grain products, fortified cereals.



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Ongoing Clinical Trials

- National Institute on Aging Clinical Trials Finder
- Recruiting participants to test dietary interventions:
 - Enhanced Mediterranean Diet for Alzheimer's Disease Prevention: Kansas City, Kansas
 - Multicultural Healthy Diet to Reduce Cognitive Decline: Bronx, New York



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Summary

- Alzheimer's Disease may affect more than 7 million Americans by 2025; more than 16 million Americans by 2050
- Nutrition and lifestyle habits play an important role in supporting brain health:
 - Exercise
 - Challenging brain with games and puzzle books
 - Consuming a diet low in fat and high in produce
- Diets that may lower the risk of cognitive decline include:
 - Mediterranean, DASH, and the brain-healthy MIND diet
 - Nutritional components include fish, berries, dark green leafy vegetables, nuts, peanut butter, olive oil, whole grains, citrus foods, milk, and dairy foods – eat the RAINBOW!

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Questions?

Comments?

Concerns?

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Objectives

Name 2 lifestyle habits that can help maintain and possibly improve brain health.

Name 3 diets that may lower the risk of cognitive decline.

Name 3 foods that may have a positive effect on brain health.

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More Lyons Healthcare Resources



Website for Healthcare Professionals
www.lyonsreadycare.com



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store.lyonsreadycare.com www.amazon.com/readycare



Facebook
www.facebook.com/lyonsreadycare



YouTube
www.youtube.com/user/LyonsInnovation

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