Manage Diabetes to Reduce Risk for Alzheimer’s Disease

Dr. Mark Gluck

What is diabetes? A condition where blood sugars (glucose) are high. If your blood sugar gets too high, this can damage blood vessels and lead to high blood pressure or strokes. Insulin is a hormone that plays a key role in allowing sugar to enter cells and keep them functioning. People with diabetes do not make or use insulin properly. There are two types of diabetes: Type 1, often called juvenile diabetes, results from an inability to produce enough insulin and can only be treated by medications. Type 2 is more common in older adults. It is caused by insulin resistance, the inability of cells to respond properly to insulin; it can be treated by both medications and lifestyle changes. Type 2 diabetes is especially common in African Americans, with the rate of diabetes in African Americans rising in recent years. Why do African Americans have such high rates of diabetes? We don’t know yet the full answer but high rates of obesity, poorer access to quality nutrition, higher levels of chronic stress, and lower levels of physical activity may all be contributing factors.

How does type 2 diabetes affect the brain and Alzheimer’s risk? People with type 2 diabetes have double the risk for Alzheimer’s disease, and are more likely to develop dementia (loss of memory and cognitive function) at an earlier age. This occurs for several reasons. First, episodes of hypoglycemia (too low blood sugar) can occur in people being treated for diabetes, damaging the hippocampus, a key brain region for storing new memories. Damage to the hippocampus can increase your risk for dementia. Second, high blood sugar can damage blood vessels in the brain leading to cognitive impairments. Third, high levels of insulin resistance in those with diabetes can directly lead to an increase in plaques and tangles among our brain cells, a hallmark sign of Alzheimer’s.

If you have diabetes, or pre-diabetes, what can you do to protect your brain health? There are steps you can take now to reduce your risk of Alzheimer’s disease and other forms of dementia. These include: engage in regular aerobic (cardio) exercise; eat a Mediterranean-style diet focusing on fruits, vegetables, and whole grains; maintain a healthy body weight; treat high blood pressure; treat high cholesterol; and don’t smoke. Studies have also shown that a drug called metformin can help manage diabetes and may also reduce the risk of Alzheimer’s disease and other forms of dementia.
Activities for Brain Health

Brain Healthy Cooking
By Delores “Cookie” Hammonds

Enjoy a healthier version of Fried Chicken by baking it in the oven, rather than a pan. Use:

- 2 cups breadcrumbs
- 1 tablespoon of dried parsley
- ½ cup reduced fat, grated Parmesan cheese
- 2 ½ lbs. of chicken (cut into pieces)
- 2 teaspoons of olive oil
- Salt and pepper to your taste
- 1 cup 2% buttermilk
- 1 tablespoon of paprika

Heat oven to 350 degrees; line a baking sheet with baking paper. Put breadcrumbs, parsley, and cheese in plastic bag. Brush chicken with oil, salt and pepper. Put buttermilk in bowl and add chicken. Place chicken one piece at a time in a plastic bag; shake to coat evenly. Afterwards, place on a baking sheet; sprinkle with paprika. Place in oven. Cook for about 45 minutes or until done. Yummy and crispy; so good and healthy!

Brain Teaser Puzzle: Ten Healthy Foods to Eat
By Zuzanna Osiecka

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

The Neuroscience of Bible Study:
Practical Tips from Brain Science for Memorizing Scripture
By Dr. Mark Gluck & Reverend Dr. Glenn Wilson, Sr.

Memorizing scripture, or any new material, is challenging, especially as we get older. In each issue of this newsletter, we will bring you another tip from brain science about how to memorize scripture with topic-relevant passages from the Bible. In the previous issue we brought you Tip #1, Think About Meaning. This issue’s tip is:

Tip #2. Start Small

Don’t overload your brain with too much information at once. A slow steady stream will allow you to keep adding more and more.

Short-term memory is like a waiting room for information on the way to long-term memory. It is limited in capacity. Research has shown we can only keep between 5 and 7 new items in short-term memory:

Break a long verse into chunks of 5 words or less.

For by grace are ye saved, through faith; and not of yourselves: it is the gift of God: not of works, least any man should boast. Ephesians 2:8-9

That is 26 words long; far more than our short-term memory capacity! Cut it down into seven bite-sized chunks of five words or less:

For by grace are ye saved, through faith; and not of yourselves: it is the gift of God: not of works, least any man should boast.

Step by step, you can learn it all.

Not ready to memorize a long verse? Begin with a short verse. This is one of the shortest and easiest:

Pray without ceasing. 1 Thessalonians 5:17

Brain Teaser Answers: Whole Grains, Broccoli, Avocado, Salmon, Yogurt, Apple
Willie Davis
VIP (Very Important Participant) since 2019

“I came of age living in an impoverished environment, surrounded by violence and hopelessness. As a young boy, the black men I encountered were primarily concerned with survival, not health! For myself, I had little, if any, knowledge of how to care for my mental, physical, emotional or spiritual health. I made a solemn promise to myself at an early age to change these circumstances. When in 2019 I was made aware of the Rutgers University Pathways to Healthy Aging in African Americans study, I jumped at the opportunity to participate. Now, at the age of 70, I want to inspire current and future generations to pursue health knowledge. I am particularly interested in the human brain, because through its preservation, it helps us know who and what we are and what is possible for us to become.”

Carmelo & Edwin Ortiz
Returning Citizens Support Group Community Partner

“The mission of the Returning Citizens Support Group is to help men and women successfully transition home to their family and community after completing their prison sentence. This includes helping them find jobs, housing, clothing and other essential resources to meet their reentry needs. We also partner with other organizations to provide services and care to the returning citizenry. Because African Americans are both disproportionately among the returning citizens of Essex County, and are so frequently affected by Alzheimer’s disease, we have partnered with the Rutgers Aging & Brain Health Alliance to promote the brain health of our membership. In addition, our partnership with Rutgers University-Newark has provided our members with job opportunities, educational opportunities, guidance on housing, and support with modern digital technologies like smartphones and computers.”

Gwen Garretson: Exceptional African American SuperAger

“I joined this brain study because of the importance of cognitive health: how well you think, learn, and remember, and how well you make and control movements including balance. After a very close friend was diagnosed with dementia and placed in a nursing facility, I felt it would be beneficial to me to change my lifestyle, keeping my mind active, eating healthy, and becoming physically active. I have always been active in my church and I now also belong to two book clubs and recently joined a senior volunteer group. I feel the combination of these healthy lifestyle behaviors helps reduce my risk for dementia and Alzheimer’s disease. I recommend the Pathways to Healthy Aging in African Americans study not only because you learn new ways to be physically active, but also because it contributes useful information to help in our overall well-being for better memory and self-esteem.”
What is the Purpose?
- We seek to understand why many African Americans are at elevated risk for Alzheimer’s disease as compared to other individuals, while some African Americans live very long lives without any cognitive impairment.
- By studying how health, lifestyle, environment, and genetics interact in different people, we may learn why some people develop Alzheimer’s disease, and others live into their 80s and beyond with strong, clear minds.
- What we learn will guide the development of novel treatments to help people stay brain-healthy and avoid Alzheimer’s disease.

Who is Eligible to Join?
- You identify as Black or African American.
- You are age 60 or older.
- You speak English fluently.

What are the Benefits?
- With your permission, we can give copies of your brain imaging (MRI), sleep monitoring, and other tests to your doctor as a free “Rutgers Brain Checkup.”
- If you show signs of serious memory decline in future years, we will pay for an initial full clinical evaluation by local doctors.
- You become a Rutgers VIP — Very Important Participant — and get invitations to free Zoom-based home wellness classes, updates on brain health news, and invitations to community health lectures and other events.
- You contribute to your community by helping us understand how African Americans age, and what might work to reduce the high rates of Alzheimer’s disease.
- You can earn up to $250, plus transportation costs, for your time and effort.

What is Involved?
- First visit: Saliva and blood collection, to measure your immune health, Covid-related antibodies, hemoglobin A1c (diabetes risk), brain health, and genetics.
- Second visit: Tests of memory and thinking, lifestyle questions, physical fitness. We will train you to use a sleep monitor for home use during this study to measure sleep patterns.
- Third visit. If you are medically able, return for brain imaging (MRI) to show us the size and activity of the different regions in your brain. 

Return every two years to repeat.

To learn more about becoming a paid participant in research on aging and brain health, please call: 
(973) 353-3673

www.brainhealth.rutgers.edu

Starting Spring 2023: We will begin enrolling participants into our new NIH-funded study of exercise and brain health. Take a free 3x-weekly exercise class for at least six months (or longer if you wish). Earn up to $600.