Preventing Alzheimer's in African-Americans by strengthening the brain

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Zumba class at New Hope Baptist Church in Newark, N.J. Credit: Dr. Mark Gluck

A major effort is underway to reduce the risk of Alzheimer's disease and other forms of dementia for older African Americans. Neuroscientist Mark Gluck of Rutgers University-Newark (RU-N) is leading a team that will use a five-year $1-million grant from the New Jersey Department of Health—obtained through a competition among states for

funding from the federal Department of Health and Human Services—to teach people how to protect their brains through exercise. They hope to demonstrate that this improves memory and cognitive vitality, reducing people's risk for Alzheimer's disease.

"African Americans have twice the rate of Alzheimerâ's disease as compared to the broader population," says Gluck, a professor at RU-N's Center for Molecular and Behavioral Neuroscience and co-director of Rutgers' African-American Brain Health Initiative. "There is a growing appreciation among scientists and doctors that the causes of Alzheimer's are complex—including not only genetic risk factors but also lifestyle, behavioral habits, and environment."

Gluck says that the task of reducing the rate of Alzheimer's disease is so complex that this three-way partnership among RU-N, the state and federal governments, and local churches, is essential to the progress he hopes to make in trying to improve brain health and reduce the rate of Alzheimer's disease in this particularly vulnerable local community.

RU-N's participation in supporting this program of community-based scholarship and research is part of its strategic plan for being an "anchor institution" that serves the needs of the people of Newark.

With the help of community and church organizations in Greater Newark, Gluck and his team will enlist several hundred African American participants 55 and older for initial physical and mental health assessments followed by a 20-week program of dance-based exercise and lifestyle education. He hopes to show that exercise will produce significant improvements in reasoning, learning and memory, all of which could then strengthen participants' brains against the stresses that cause Alzheimer's.

According to Diane Hill, RU-N's assistant chancellor for university-

community partnerships and the other co-director of the African-American Brain Health Initiative, convincing people to participate in a large research effort is an achievement in itself. "Minority communities have long regarded participating in research as a no-no," says Hill, a Newark native, citing African Americans' bitter memories of experiments such as the notorious Tuskegee, Alabama, syphilis research that began in the 1930s.

However, over the past then years, Gluck, Hill and their African-American Brain Health Initiative team at RU-N laid extensive groundwork for this project through brain health education programs at local churches and community centers.

Hill is especially proud of the dance-exercise program that has increased physical activity among participants who are as old as 90. "If you see the dance classes," Hill says, "you'll see they all want to be there. We try to make it fun for them. An added benefit is that we've built relationships with respected figures who are identified in the community and whom the community trusts."

One such leader is Francis Dixon, a deacon at Newark's New Hope Baptist Church and executive director of the church's New Hope Now Community Development Corporation. Dixon says the RU-N group was not the first research team to approach his congregants—but it was the first he was willing to endorse. "I felt their intent was sincere," says Dixon. "They were the real deal. They communicated with me. They asked for advice. Not only did they ask for advice. They took advice." Dixon was among the community leaders who wrote letters to funders that Gluck says were essential to Rutgers' securing the dollars that will support the program.

The grant from the state Department of Health will support testing measures such as memory, verbal skills and attention span to help

understand which aspects of brain and cognitive function are most likely to be improved by this type of dance-based exercise and who is most likely to see these benefits.

With funding from another $160,000 grant from RU-N's Office of the Chancellor—one of six Initiative for Multidisciplinary Research Teams (IMRT) awards that the university announced last May—Gluck's group will also gather data on participants' brain circuitry, aging, and levels of stress and depression, as well as sleep—all of which may play important roles in the onset of dementia.

"We know that sleep plays a critical role in memory, particularly emotional memory," says Gluck. "On average, African Americans get two hours less sleep per night than the general population. That's a huge percentage and a scary statistic. There are also higher levels of stress, anxiety, and depression."

While the Rutgers team's focus for now is the health of older African Americans in Newark, Gluck says its efforts have a chance to reach much farther. "A lot of our research has applicability beyond the black community, because we're asking fundamental questions about aging, Alzheimer's, and the brain which can impact everyone. We have to know who are the people most likely to get Alzheimer's, and how can we assess whether early interventions are working or not. In this way, our work on early markers and interventions for Alzheimer's disease could have implications for everyone, regardless of race or ethnicity."

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