

# Brain & Behavior

*The Science of Neuropsychology*

by CARRIE FRYE | Photography by DIANA MATTHEWS

Solving a Sudoku puzzle, taking a brisk walk or eating more broccoli might be typical topics of conversation when it comes to better brain health. The subject is much more top of mind these days, and perhaps should be with more than 5 million Americans living with Alzheimer's disease.

Keeping busy with an engaged mind and staying connected socially are two key factors identified in a 2015 Harvard Medical School study to help stave off dementia, and a recent AARP study cites mental sharpness as a top priority for those 50 and older, even outranking concerns over Social Security and physical health. Baby boomers may be the driving force due to an increased aging population but just as prevalent is

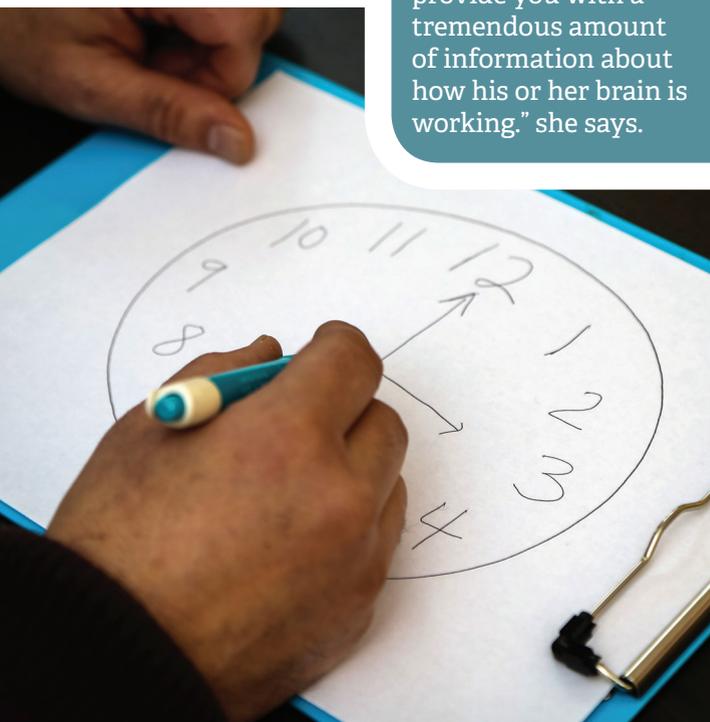
their desire for more proactive health initiatives and answers when cognitive changes in function and behavior begin affecting everyday life.

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Karen D. Sullivan, PhD, ABPP, discusses a diagnosis and paper and pencil testing. “Having someone draw a clock can provide you with a tremendous amount of information about how his or her brain is working,” she says.



“On the whole, older adults are becoming more aware of the importance of brain health,” says Karen D. Sullivan, PhD, ABPP and owner of Pinehurst Neuropsychology Brain and Memory Clinic. “They are actively seeking to learn and employ scientifically supported strategies to improve brain health, reduce the risk of developing dementia and detect memory loss at the earliest stage possible.”

Chris Contardo, PhD, ABPP at Psychiatric and Psychological Specialties in St. Joseph, Michigan, serving patients throughout southwest Michigan, also recognizes a move toward clear diagnoses by boomers as a national trend.

“If there has been a push, it is the early identification of memory loss,” he says. “It really comes down to people moving away from screenings and not being OK with whatever is happening to them. Boomers are demanding research continue to enable the latest technological developments and using neuropsychology in a proactive way to help identify potential problems before a crisis, such as knowing someone shouldn’t drive before there is an accident.”

## The Science

Neuropsychology is the science of brain and behavior. As a specialty field within clinical psychology, neuropsychologists complete an accredited doctoral program in clinical psychology with a clinical internship and two years of post-doctoral training in neuropsychology. Although the specialty may not roll off the tongue, its providers work in tandem with primary care physicians, neurologists or other physician specialists to provide evaluation and testing when people have concerns regarding memory loss or have epilepsy, multiple sclerosis, stroke, traumatic brain injuries or a form of dementia, including Parkinson’s or Alzheimer’s disease.

“We also see people who may not have a known medical condition but are trying to understand why they are experiencing changes in memory, attention or word-finding difficulties,” says Jill Zukerman Stuart, PhD, ABPP at Duke Neurological Disorders Clinic in Durham. “We look at cognition, at people’s memory, attention, thinking and a lot of measures that correlate to different areas of the brain to determine how different parts of the brain are functioning while taking into account what makes us people: education, occupation, moods and stressors. All of these things are important to how we function, not just a test score.”

It might be a specific task that has become difficult, like balancing a checkbook or forgetting to take medications, that prompts an initial conversation with your primary care doctor.

“It’s important to note and discuss any cognitive changes with your physician,” Dr. Sullivan says. “When you notice something that interferes with what we call instrumental activities of daily living, such as driving or getting taxes together, this is a clear sign that something is wrong and that the person should speak with a healthcare professional.”

The initial screening done by a primary care physician or specialist is the beginning step in the process.

“These screenings can tell something is wrong but not exactly what the problem is,” Dr. Contardo adds. “The neuropsychology testing is much more in-depth and personalized and allows for a specific diagnosis to be given, allowing the patients to not sit in an ambiguous place. It gives them answers.”

## Task-oriented Testing

Neuropsychologists employ a variety of task-oriented, standardized evaluations to determine how a person’s brain functions. The evaluation tests a person’s abilities across a wide range of areas, including:

- Attention and Concentration
- Planning
- Multi-tasking
- Reasoning
- Learning and Memory
- Speech and Language

“People should know that we are not going to poke or prod,” Dr. Stuart says. “It’s a paper and pencil test, and we don’t do anything scary. People may come with apprehension, and that’s understandable, but I am here to give you the most options to improve your quality of life.”

One paper and pencil test may include asking the person to draw a clock on a blank sheet of paper.

“Some of the neuropsychological tests that we do may appear incredibly simple,” Dr. Sullivan says, “but based on years of research, they are quite sophisticated. Having someone draw a clock can provide you with a tremendous amount of information about how his or her brain is working. Edith Kaplan, the godmother of neuropsychology, once said that you should be able to conduct a neuropsychological evaluation on a desert island with a stick and some sand, and I love that.”

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“When I was a teenager, my grandmother began showing signs of Alzheimer’s disease, and this had a lasting effect on me professionally and personally. I don’t think you can live through the experience of Alzheimer’s with someone you love and not be profoundly moved.”

—KAREN D. SULLIVAN, PhD, ABPP



## Is neuropsychology covered by insurance or Medicare?

“As with all things related to insurance, it depends on your personal coverage,” Dr. Sullivan advises. “As a general rule, most plans require a referral from your primary care physician or a specialist and reimburse for a neuropsychological evaluation based on medical necessity.”

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## Personal & Family Interviews

In addition to the paper and pencil testing, another aspect of the complete neuropsychological evaluation includes interviews with not only the person but also a family member, caregiver or friend.

“Family members have so much valuable information to share, and to not access their expertise would be a huge opportunity lost,” Dr. Sullivan adds. “It is only when we combine both sets of know-how that we can get somewhere in the care of people with brain issues.”

“If there has been a day-to-day decline from a functional standpoint,” Dr. Contardo adds, “a patient can be a bad reporter on that, and we need a lot of information from family members and caregivers. Their information is vital.”

Including family caregivers in the process may also alleviate them from playing the role of the “bad guy,” especially for difficult decisions like having to take away the car keys.

“When the opinion comes from an objective outsider and stops being a ‘he said, she said’ conflict, relationships vastly improve,” Dr. Sullivan says.

## Quality of Life Results

With the compilation of testing and interviews complete, neuropsychologists can formulate a plan of care that focuses on quality of life.

A neuropsychological evaluation can:

- Reduce uncertainty about a change in thinking or behavior
- Start disease-specific medications as soon as possible that may slow symptoms
- Reduce modifiable risks that may contribute to memory decline or functional impairment
- Provide options for planning for the future
- Provide education and support to the patient and family
- Connect patients to community-based resources
- Inform decision-making about abilities such as driving, living independently and level of supervision
- Provide a baseline for ongoing monitoring of cognitive symptoms and changing care needs

“Sometimes, you have to give patients bad news, but it’s better to get the bad news early, plan and make adjustments on your own terms,” Dr. Contardo says. “It is also really nice to tell someone, there is nothing wrong, or it is treatable. Those are the good ones.”

Although it can be a difficult road with a dementia or Alzheimer’s diagnosis, the role of the neuropsychologist includes more than mere diagnostics.

“A neuropsychologist’s job is to bring clarity, understanding and care to how a certain condition affects the whole person, not just one part of their body,” Dr. Sullivan says. “We care about how people and their families are adjusting to their brain

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condition, how they are grieving in some instances, how they are meeting their work and family obligations and how their relationships are affected.

“I take pride in communicating the complex workings of the brain into language people can understand and framing it in a context that makes the information meaningful. If people don’t understand how diabetes, high blood pressure or sleep apnea affects the brain, they aren’t as motivated as they could be to manage these conditions.

“In the case of dementia, it is critical to know what specific type of brain disease is causing dementia, so treatments can be customized, and the proper information can be discussed, including what to expect in the future, what type of care and support the person needs and how family members can specifically help the person remain as happy and independent as possible.

“When I was a teenager, my grandmother began showing signs of Alzheimer’s disease, and this had a lasting effect on me professionally and personally,” Dr. Sullivan adds. “I don’t think you can live through the experience of Alzheimer’s with someone you love and not be profoundly moved. I feel so thankful to have the opportunity to serve people in this unique way. I choose neuropsychology, because it provides the best tool I have ever found to help people.”

## Three Reasons to Consider a Neuropsychological Evaluation

Karen D. Sullivan, PhD, ABPP, advises that there are a few good rules of thumb regarding when it might be time to consider a neuropsychological evaluation that can range from quite broad to very specific.

- 1. Anyone older than 65 may benefit from a baseline evaluation,** even if he or she does not have any significant cognitive concerns at this time, especially if there is a family history of dementia. The memory medications on the market today are most beneficial when started as early as possible and the best way to know when there has been a change is through objective testing. Also, many older adults have normal age-related changes or treatable forms of memory loss, and if this is the case, we can treat the underlying condition and reassure the patient. Anxiety about changes in memory can cause memory symptoms, because they can distract us and reduce our ability to concentrate on the here and now. Worst-case scenario, there is something significant going on, such as dementia, and we make a proactive plan and give the person the best chance to live the highest quality of life. Best-case scenario, it is normal for the person’s age, and we can talk about strategies to keep it that way.
- 2. If someone has been diagnosed with a condition that involves the brain,** such as a stroke, Parkinson’s disease, multiple sclerosis, Alzheimer’s disease or brain cancer, or other medical conditions affecting the brain, including sleep apnea, heart attack with a loss of consciousness, diabetes or depression, these people should also consider an evaluation.
- 3. If an individual or family member feels there has been a change in the patient’s thinking or behavior,** an evaluation can provide significant benefit.



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