

COMMEMORATIVE EDITION

PRESERVING YOUR

MEMORY

SPRING 2020

Zachary Fisher

CAREGIVER, DEVOTED HUSBAND
& PHILANTHROPIST

Demystifying
DEMENTIA

Rebuilding Your Self-Confidence
for the Long Haul

THE IMPORTANCE OF
Getting Outside

After Alzheimer's
Diagnosis:
NOW WHAT?



FISHER CENTER FOR
ALZHEIMER'S
RESEARCH FOUNDATION

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Zachary Fisher

Zachary Fisher's life was marked by philanthropy and love for his wife and his country. He founded the Fisher Center for Alzheimer's Research Foundation.



Photo courtesy of Dr. Sunnie Kenowsky



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MEMORY

PRESERVING YOUR



FISHER CENTER FOR
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What Is Your Legacy?

Spring greetings to you! Vibrant days and fresh aromas bring a palpable sense of hope as we continue battling the COVID-19 outbreak. A pal of mine lost his life to it and another recovered from it. First responders and essential workers are celebrated worldwide for their heroism; read about ours in the timeline “TODAY” on page 52. Our country is evolving and will emerge from this with a new sense of normalcy. Here at the Foundation, we are finding creative ways to celebrate our impending silver anniversary now through October 24.

This commemorative edition features our hero and founder Zachary Fisher and the momentous impact both he and his wife, Elizabeth M. Fisher, had on the lives of so many. Elizabeth’s niece, Dr. Sunnie Kenowsky, whom she and Zachary raised, shares some insight and rare photos on page 38. Sunnie’s infectious optimism and courage have inspired me over the years. Hadley Fisher, Zachary’s nephew and our Board Trustee, said that Fred Astaire’s classic song “Cheek to Cheek” was the best description of their great love affair. Liz was Zach’s dancing partner, and Alzheimer’s took his partner away from him, which is why he was so passionate about the cause.

The Fishers’ legacy touched my family last year when my cousin Annie’s husband, Ronnie Stokes Sr., a veteran, sustained a spinal injury, landing him in Hunter Holmes McGuire VA Medical Center for extended care while Annie lived in the Fisher House. Annie was so grateful she had

a community home with supportive extended family; she still keeps in contact with them. Ken Fisher, Zachary’s grandnephew, continues the legacy and serves as the Chairman and CEO of Fisher House Foundation.

Read about the Fisher Center lab team on pages 12-17 and the Fisher Center Foundation’s Board of Trustees and staff on pages 28-35.

On page 18, read our tribute to trailblazing model, lifestyle maven and restaurateur B. Smith, who lost her battle with early-onset Alzheimer’s on February 22. On New Year’s Eve 10 years ago, B. and her husband, Dan, treated my family and me like dear friends at her thriving namesake restaurant in Washington, D.C. B. graciously checked on every guest, took pictures and chatted with us, while Dan led the cheering crowd at midnight. It’s a night I’ll never forget. B. and Dan were on our Summer/Fall 2016 cover; you can find their featured article at alzinfo.org/pymfall16.

Finally, I want to thank you for your unwavering support of our mission. Your donations ensure that our renowned scientists continue working to find the cause of and cure for Alzheimer’s, and that our Information Program continues providing resources to people with Alzheimer’s and their caregivers. The Fishers made sacrifices to build a legacy that continues to help millions of people. What will you sacrifice to build your legacy? “Whatever you do, do it with style.” —B. Smith



Lucretia Holden,
SHRM-CP
Executive Director

About the Fisher Center for Alzheimer’s Research Foundation

Since 1995, the Fisher Center Foundation, a 501(c)(3) nonprofit organization, has provided hope and help to the public by funding research into the **cause, care, and cure** of Alzheimer’s disease and creating much-needed information programs. Our internationally renowned scientists are at the forefront of research that provides a conceptual framework for modern-day investigations into Alzheimer’s disease.

The Fisher Center Foundation has earned Charity Navigator’s highest 4-Star rating for eight consecutive years for fiscal management and commitment to accountability and transparency. We are now in the top 1% of all charities rated. For more information or to make a donation, go to ALZinfo.org/donate.

We want to hear from you.

What additional Alzheimer’s topics could we cover?

Do you have any questions for the experts?

Send us an email to info@Alzinfo.org.

CAUSING

One of the primary goals of the Fisher Center for Alzheimer's Research Foundation is finding the root cause(s) of Alzheimer's disease, all with an eye to finding better treatments and even a cure.

For Agitation Due to ALZHEIMER'S DISEASE, SKIP THE DRUGS?

Massage, outdoor activities, exercise, music therapy and other non-drug treatments can be an effective way to reduce aggression and agitation in people with Alzheimer's disease, according to a new analysis in *Annals of Internal Medicine*. These non-drug treatments are far safer than medications and, in many cases, should be given priority in treating disruptive behaviors in people with dementia, the authors conclude.

Agitation and aggression are very common in the more advanced stages of Alzheimer's. They can take a toll on caretakers and are often why those with dementia can no longer be cared for at home.

Antipsychotics, antidepressants or other drugs are sometimes the right choice for easing the agitation of dementia, but they can carry serious side effects, including an increased risk for falls. Non-drug treatments may in some cases be a more effective, and safer, alternative to drug therapies.

Reducing noise and distractions in the home may also provide some relief. Regular medical and dental care is also essential to rule out pain and other health problems that may be increasing agitation.



Rare Genetic Mutation May Protect Against Alzheimer's Disease

Researchers have discovered a rare genetic mutation in a woman from Colombia that appears to be protective against Alzheimer's disease. Most members of her large extended family developed early-onset Alzheimer's starting in their 40s. The woman carried the family genes for early-onset Alzheimer's, and her brain was riddled with the disease's telltale plaques. But she was in her 70s and only starting to show signs of memory loss.

The protective factor appeared to be another rare mutation known as Christchurch, named for the city in New Zealand where it was originally discovered, according to research published in *Nature Medicine*.

Better understanding of why this woman did not develop symptoms of Alzheimer's for decades, despite the heavy buildup of plaques in her brain, could open up new avenues to treat or prevent the disease, such as designing small drug-like molecules to mimic the Christchurch mutation.

The Fisher Center for Alzheimer's Research Foundation has a strong interest in how genes affect Alzheimer's from a therapeutic perspective and actively continues to pursue research in this area.



Demystifying DEMENTIA

By Karen Michels



The word “dementia” often gets mentioned in the same breath as “Alzheimer’s disease.” The two terms are even used interchangeably. However, dementia and Alzheimer’s are not the same thing. A better understanding of dementia may help improve the understanding of Alzheimer’s itself.

“The term ‘dementia’ is not specific to a disease,” says Barry Reisberg, MD, Director of the Fisher Alzheimer’s Disease Education and Resources Program at the New York University (NYU) Langone Medical Center. “Instead, it is the general term for loss of cognitive abilities that is the result of a disease or injury.” Put simply, dementia means the presence of a disease or condition that causes loss of mental function that is severe enough to interfere with everyday life. Dementia often involves declines in the so-called thinking abilities, such as memory, logic and reasoning. Other possible effects include language problems, mood issues and behavior changes.

Dementia is generally triggered by abnormal changes in the brain. These can be a result of an acute injury that causes brain trauma, such as a blow to the head. They can also be due to a reversible problem, such as a vitamin deficiency. However, Dr. Reisberg explains, the term is most often used to describe a progressive condition such as Alzheimer’s—one that tends to get worse over time.

Alzheimer’s is by far the most common type of dementia, accounting for 60% to 80% of cases. But it’s not the only type. There are many other conditions that fall under the umbrella of dementia. There are some common symptoms between the types, especially in the very early stages. So the exact condition may not be clear at the start. “Though there are well-defined stages to Alzheimer’s disease, it is a process,” says Dr. Reisberg. “This process becomes more and more evident over time as the disease progresses.”

What follows is a brief discussion of Alzheimer’s and some of the other main types of dementia.

Barry Reisberg, MD, is a Professor in the Department of Psychiatry at New York University, the Clinical Director of the Aging and Dementia Research Center and the Director of the Zachary and Elizabeth M. Fisher Alzheimer’s Disease Education and Research Program at NYU. Dr. Reisberg is considered one of the premier researchers in the field of Alzheimer’s disease. In 1982, Dr. Reisberg became the first to describe the typical course of Alzheimer’s and many of its most important characteristic symptoms. Since then, he has continued to advance our understanding of Alzheimer’s and make discoveries to improve its diagnosis and treatment.

Alzheimer's Disease

Alzheimer's disease is a progressive neurological brain disorder that causes problems with memory, named after a German physician, Alois Alzheimer, who first described it in 1906 after observing symptoms in a female patient named Auguste D. A person can have Alzheimer's without experiencing any symptoms, especially at first. Over time, loss of memory and other cognitive symptoms can become more prominent.

It's important to understand that Alzheimer's is not a normal part of aging, even though the majority of people with Alzheimer's are older than age 65.

Having trouble remembering newly learned information is the most common early symptom of the disease. As Alzheimer's advances, symptoms become more severe and can include disorientation and changes to mood and behavior, as well as confusion about events, time and place; unfounded suspicions about the people in the Alzheimer's patient's life; and even difficulty speaking, swallowing or walking.

Vascular Dementia

The second most common dementia after Alzheimer's disease, vascular dementia is caused by problems with blood vessels in the brain. If there is a problem with blood flow to an area of the brain, the affected area can be damaged. Brain functions, including thinking and reasoning, can then be lost. A common cause of vascular dementia is a stroke, which is a sudden blockage of blood vessels in the brain. The blockages that cause strokes in the brain are similar to those that cause attacks in the heart.

In some cases, the symptoms of vascular dementia can come on quickly. In other cases, symptoms are mild and only gradually get worse. Especially if the part of the brain dealing with memory is affected, vascular dementia symptoms can look very similar to those of Alzheimer's.

Lewy Body Dementia

Lewy body dementia is named after abnormal protein deposits in the brain known as Lewy bodies. These are associated with brain changes that lead to problems with brain functioning. Like Alzheimer's, these problems often involve thinking, memory, behavior and mood. People with Lewy body dementia are more likely than people with Alzheimer's to have hallucinations and serious sleep disruptions.

Frontotemporal Lobe Disorders

This is a group of disorders that result from changes in two areas of the brain: the frontal lobe and the temporal lobe. Nerve cells in one or both of these lobes may gradually become damaged and die, leading to a variety of symptoms. There are two main types of this disorder. One type (behavioral variant frontotemporal lobe disorder, or bvFTD) has symptoms that include changes in behavior and in the ability to control and express emotions. The other type (primary progressive aphasia, or PPA) mostly affects the ability to speak, write and understand language.



Rebuilding Your Self-Confidence

FOR THE LONG HAUL

By Gary Joseph LeBlanc

Self-confidence is a delicate thing. The number of batterings taken as caregivers, whether financial, in broken relationships, abandonment or isolation, results—no wonder—in many of us emerging from those years lacking self-confidence and self-esteem.

Some of us are more fragile than others, but that's OK. We can get through this. The fallout may be related to caregiver guilt or just straight-out mental and physical exhaustion.

Many of us gained weight during the tenure of caregiving, myself included. Just being that heavy alone caused an internal battle of whether I should even think about venturing out into society at all. Similar radical changes in physical appearance, such as voluminous hair loss or worn-down facial features, might have an equally antisocial impact.

You may find it difficult to discover that person you once were. It certainly was for me. But I was still in there! In fact, I believe there is a new and improved version just waiting to burst out of all caregivers! But first, you yourself may need to address some of the other aftereffects, such as depression. That alone can be overshadowing the confidence you once had. I believe that by taking on your physical and mental health issues first, your self-confidence will start shining through. Naturally, some of us will have to work harder than others will at regaining it.

Caregivers are notorious for having a negative dialogue going on inside their heads. If that voice is putting you down or trying to convince you not to get yourself back

out into the social world, use your outer voice instead. Again, tell yourself that you're going to put on those better dress clothes and you're going to leave the house looking sharp. Lift your spirits in any constructive way that you conceivably can. At this point in your life, a refreshed outward appearance can help jump-start your inner well-being.

The definitions of self-esteem may vary. However, they all seem to share one common trait: "a sense of worth as a human being."

So never forget what you have accomplished as a caregiver. A surprisingly small segment of the population can handle the task that you have taken on. Many have tried and have had to walk away, some even running as fast as they possibly could.

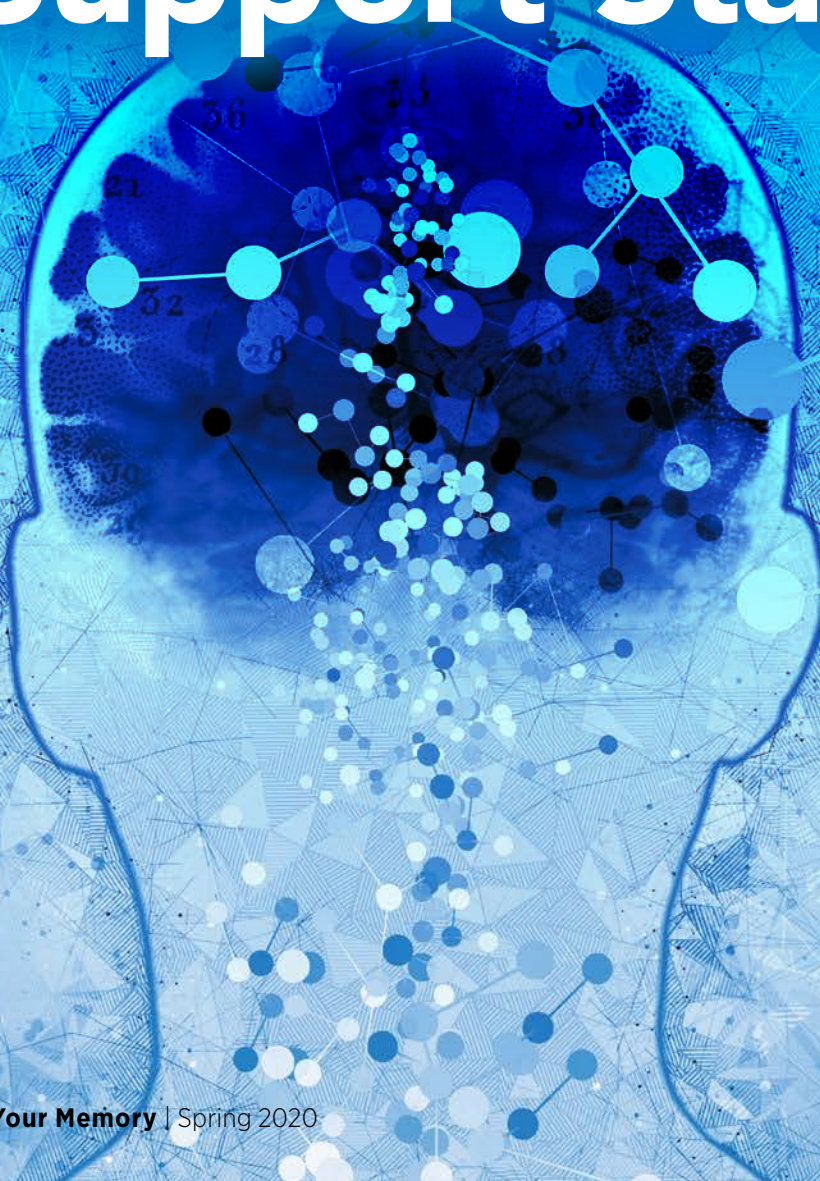
Caregivers all belong to an elite group. Always be proud.

In other words, for all of us, I've found that in order to continue our healing process, we sometimes have to push ourselves outside our comfort zones. Don't feel a need to give up your standard lifestyle. I just want you to expand on it to the point where it actually starts feeling like a lifestyle again. Get some fresh air!

Restrengthen your inner core and always remember that you now have vastly improved knowledge and much more experience in caring for others. It's time to direct some of this newfound expertise toward self-care.

Gary Joseph LeBlanc is Director of Education for the Dementia Spotlight Foundation.

Meet the Fisher Center for
Alzheimer's Research Lab's
**World-Renowned
Scientists and
Support Staff**



The Fisher Center for Alzheimer's Research's scientists and support staff are making important strides in pursuing better treatments and a cure for Alzheimer's disease.

SCIENTISTS



Marc Flajolet

Acting Director
Research Associate
Professor, Neuroscientist,
Molecular and Cellular
Biologist, Biochemist

Area of Focus: He has been part of the Fisher Center lab since 2000. Since last April, he has overseen all the programs and directed more closely several programs related to drug discovery. For example, he is building a novel and ambitious platform for drug discovery applications that uses and further develops a state-of-the-art technology bringing together molecular biology and chemistry.



Alona Barnea-Cramer

Postdoctoral Fellow, Neuroscientist, Cellular Biologist

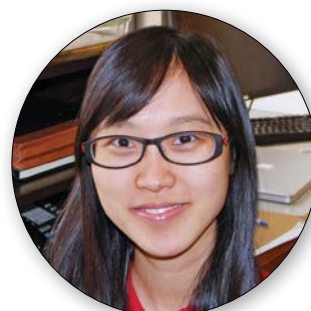
Area of Focus: She is developing a cellular model of Alzheimer's disease using patient skin cells that are reprogrammed to resemble the neurons that are vulnerable in Alzheimer's disease.



Victor Bustos

Senior Research Associate, Neuroscientist,
Biochemist, Cellular Biologist

Area of Focus: He studies how an enzyme called CK1 modulates gamma-secretase activity. Gamma-secretase is also an enzyme and one of the two enzymes that cleaves a component (APP) to release the toxic amyloid peptide. He also focuses on identifying cellular products (such as C99) that correlate better with the disease progression than the more common Alzheimer's hallmarks.



Jia Cheng

Postdoctoral Fellow,
Neuroscientist, Electrophysiologist

Area of Focus: She is in charge of all the projects that require physiological recording of neuronal activity. Electrophysiology is the science that addresses the functionality of the neurons and measures how healthy the neurons are. This is crucial for most of the projects at the Fisher Center lab.



Jerry Chang

Postdoctoral Fellow, Imaging Specialist

Area of Focus: He is in charge of all the projects that require state-of-the-art imaging techniques, such as live imaging, to study how cells respond to various stimuli in real time and how trafficking inside the cells is regulated. He is also in charge of acquiring and optimizing novel technologies such as iDISCO (to see through the brain) and expansion microscopy (to increase the size of cell components to visualize them better).

SCIENTISTS

(continued)



Revathy Chottekalapanda

Research Associate, Neuroscientist, Biochemist, Molecular Biologist

Area of Focus: She is studying how genes are regulated in the adult brain. Each gene has a region upstream of its DNA sequence that can be regulated to increase or decrease its activity. Many factors, such as hormones, stress, anxiety, depression, day-night cycle and medicines, can affect this regulatory system. The goals are to understand how the disease affects these regulatory mechanisms and how we can revert them back to normal.

Ana Jedlicki

Research Specialist, Molecular Biologist, Biochemist

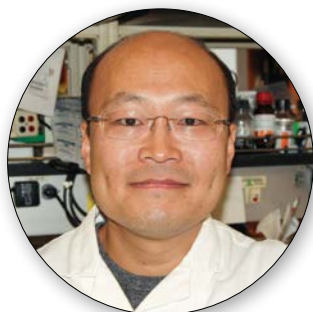
Area of Focus: She works with Dr. Bustos on the identification and determination of novel cellular products (such as C99) that correlate better with the disease progression than more common Alzheimer's hallmarks.



Junghee Jin

Postdoctoral Fellow, Neuroscientist, Behavioralist, Biochemist

Area of Focus: She is in charge of a number of studies involving behavioral characterization of small rodents. Typically, mice models of Alzheimer's disease are used at the Fisher Center lab to evaluate the efficacy of a medicine (for example, on different types of memory or general activity) and also to study the impact of a specific gene (such as when a gene is genetically removed).



Yong Kim

Senior Staff Scientist, Neuroscientist, Biochemist, Cellular Biologist

Area of Focus: He is studying how various neuronal molecular pathways related to stress and inflammation are affecting the hallmarks of Alzheimer's. His studies focus on nerve cells, but he also recently initiated some novel studies aiming at characterizing the role of accessory cells called microglia in the disease process.

José Ledo

Postdoctoral Fellow, Neuroscientist, Cellular Biologist

Area of Focus: He is studying how various genes and cellular modifications identified at the Fisher Center are affecting accessory cells (microglia) in the context of inflammation. These cells are known to have a beneficial role for the brain and neurons, but an overactivation of these is now believed to be an important component of Alzheimer's. Therapeutically, a part of Dr. Ledo's project aims at reducing the activation of these cells.





Lucian Medrihan

Senior Research Associate,
Neuroscientist, Electrophysiologist

Area of Focus: He is in charge of developing and optimizing a state-of-the-art electrophysiological recording technique to measure neuronal activity from multiple neurons (up to 32) at the same time and from a free-moving rodent. Both aspects are extremely challenging (multielectrode recording and live animal recording) and could shed light on neuronal networks and how these networks become deficient in Alzheimer's.



Ana Milosevic

Senior Research Associate,
Neuroscientist, Cellular Biologist

Area of Focus: She is studying how various neuronal molecular pathways related to inflammation are affecting the hallmarks of Alzheimer's. Her studies are focusing on accessory brain cells (non-nerve cells) called astrocytes and are aimed at characterizing the role of these accessory cells in the disease process.

Thu Lan Nguyen

Postdoctoral Fellow, Neuroscientist,
Behavioralist, Biochemist

Area of Focus: She is working closely with Dr. Flajolet on establishing and optimizing a novel and revolutionary drug discovery platform that will allow Fisher scientists to test drug-like compounds 10 to 100 times faster than usual. She is involved in the platform development as well as in optimizing screening conditions biochemically.



Maria Pulina

Research Associate, Neuroscientist, Biochemist, Cellular Biologist

Area of Focus: She works under the supervision of Dr. Bustos on identifying novel pathways and cellular components involved in the production of the toxic amyloid peptide. She also participates in the identification of better neurodegenerative markers, such as the component called C99.

Patricia Rodriguez

Postdoctoral Fellow, Neuroscientist, Cellular Biologist

Area of Focus: She is working on further characterizing three gene candidates that Dr. Roussarie has identified while searching for genes that would be crucial in explaining the difference between neurons that are vulnerable to the disease (dying) compared with neurons that are resistant (perfectly healthy).



SCIENTISTS

(continued)



Jean-Pierre Roussarie

Senior Research Associate, Neuroscientist, Biochemist, Molecular Biologist

Area of Focus: He is in charge of a large and ambitious program aimed at studying the crucial differences between neurons that are dying early in Alzheimer's progression (vulnerable neurons) and the neighboring neurons that can be very similar but are not affected by the disease. He has identified a number of pathways and genes, and he is now further studying some of these genes specifically.



Yashoda Sunkari

Research Associate, Chemist

Area of Focus: He designs and performs chemical reactions required for building the novel drug-screening platform. He is also involved in designing and developing novel chemical reactions and tools necessary for this platform and testing their compatibility with DNA. He develops and optimizes chemical protocols relevant for the Fisher Center lab.

Vijay Kumar Siripuram

Postdoctoral Fellow, Chemist

Area of Focus: He designs and performs chemical reactions required for building the novel drug-screening platform. He is involved in the purification and fine analysis of drug-like compounds using our advanced analytical tools (such as mass spectrometry and high-performance liquid chromatography). He also performs and tests novel chemical reactions.



Peng Xu

Postdoctoral Fellow, Neuroscientist, Biochemist, Cellular Biologist

Area of Focus: He is in charge of the project related to APP trafficking and studies how other cellular components are regulating its trafficking within the neurons. He is using molecular tools like CRISPR and imaging techniques to modify cells genetically and to study the impact on trafficking.

Wei Wang

Bioinformatics Specialist

Area of Focus: He is in charge of organizing and presenting large data sets obtained after DNA next-generation sequencing for all the scientists at the Fisher Center lab. The Fisher Center scientists are increasingly analyzing large-scale data sets (such as vulnerability project and single-cell sequencing), and these large data sets need to be organized and their quality controlled before scientists can start analyzing them in terms of pathway and gene identification.



Mingming Zhou

Research Associate, Neuroscientist, Behaviorist, Biochemist, Molecular Biologist

Area of Focus: She is performing behavioral characterization of novel mouse models. She is working on large-scale data set analysis comparing molecular pathways affected in our animal models and human data sets with the ultimate goal of identifying novel therapeutic targets (such as receptors) directly relevant to the human pathology.

ADMINISTRATIVE AND LAB MANAGEMENT TEAMS

In Alphabetical Order



Suzette Brown
Laboratory Helper

Role: She is in charge of our washroom and autoclave room. She assists the scientists with daily laboratory tasks centered on glassware washing and drying, and sterilization of reagents, media and surgery tools.



Peh Hsia
Grants and Financial
Administrator

Role: She assists Dr. Flajolet in daily laboratory financial tasks. She also helps and supports scientists with fellowship applications and administrative tasks in general.

Elisabeth Griggs
Graphic Artist

Role: She assists all the scientists in preparing any graphic needs for visual presentations, publications and reports.



Adam Ogilvie
Laboratory Administrator

Role: He supports the scientists with general administrative tasks and ensures that dedicated laboratory spaces and equipment are in good order.

Elaine Markland
Skilled Laboratory Helper

Role: She assists the scientists with daily laboratory tasks involving the preparation and ordering of reagents, consumable delivery, stockroom organization and other essential lab organizational tasks.



Debra Poulter
Executive Assistant

Role: She assists Dr. Flajolet in daily laboratory operations. She also helps and supports the scientists with general publication-related tasks such as preparing and proofreading manuscripts, editing written documents, and overall external and internal written communications.

B. Smith:

A Celebration of a Life Well-Lived

In February the celebrated model, fashion guru and restaurateur B. Smith passed away, according to her husband and business partner, Dan Gasby. B. (short for Barbara) was profiled as *Preserving Your Memory's* Summer/Fall 2016 issue cover story.



In every way, B. Smith (1949–2020) was a groundbreaking figure. The second African-American model to be featured on the cover of *Mademoiselle* magazine, Smith parlayed her successes into thriving businesses. She opened her Manhattan restaurant, B. Smith's, in 1999 and built it into a bustling establishment. She met Gasby at the Manhattan location. Two more locations followed, in Sag Harbor, New York, and Washington, D.C.

Smith's active life included a syndicated weekly TV show on NBC, *B. Smith with Style*. She featured a line of bedding, tableware and bath products for Bed Bath & Beyond, and

a furniture collection for La-Z-Boy. Smith's expertise and guidance on all things stylish earned her the nickname "the Black Martha Stewart."

Smith authored two books on home entertaining, *B. Smith's Entertaining and Cooking for Friends* and *B. Smith's Rituals and Celebrations*. She also published a cookbook, *B. Smith Cooks Southern-Style*.

Smith was diagnosed with early-onset Alzheimer's disease in her late 50s. She waged a public battle with the disease, coauthoring a book with Gasby about their fight: *Before I Forget: Love, Hope, Help and Acceptance in Our Fight Against Alzheimer's*.



B. Smith led an extraordinary life, sharing her gifts with the world in a variety of ways.

Photos courtesy of Dan Gasby.

CARE

A vital part of the Fisher Center for Alzheimer's Research Foundation's mission is providing needed resources for caregivers of people living with Alzheimer's disease.



WAKE UP

to the Health Benefits of a Nutritious Breakfast

Are you one of the 18% of American adults who regularly skip breakfast? You may want to reconsider and take a minute to pour yourself a bowl of whole-wheat cereal.

Men whose stomachs stayed empty until lunchtime had a 27% greater risk for heart disease than those who ate breakfast, according to a new study in the journal *Circulation*.

Researchers arrived at this conclusion by asking more than 25,000 middle-aged and older men to fill out questionnaires about their eating habits. They then followed the men for 16 years to see which of them developed heart disease.

And we now know that what's healthy for the heart is generally good for brain health as well.

HOW BREAKFAST PROMOTES GOOD HEALTH

The results suggest that it's not just what you eat but when you eat it that makes a difference in good health. And these results are just the latest to make the case for breakfast. Previous studies have linked breakfast to less overeating, less weight gain and a lower risk for type 2 diabetes.

Why? For one thing, breaking your nighttime fast keeps your blood sugar steady and prevents you from eating more later in the day. These factors keep your waistline in check and protect you from diabetes and heart disease.

Healthcare providers also suspect that people who eat breakfast tend to have other healthy habits, such as not watching as much TV and exercising more. However, in the new study, breakfast and heart disease remained linked even after adjusting for these factors.

WHAT TO PUT IN YOUR BOWL OR ON YOUR PLATE

Of course, many breakfast foods don't meet the definition of heart-healthy. Skip the bacon and buttered toast. Instead, fill up on:

- Oatmeal with fruit and reduced-fat milk or soy milk
- A fruit smoothie blended with low-fat yogurt
- An omelet made with egg whites or egg substitute and colorful veggies

For more healthy morning ideas, turn to the Produce for Better Health Foundation. Visit www.fruitsandveggies.org, click on "Recipes," then click on "Breakfast and Brunch."

See page 55 for two nutritious recipes: a breakfast smoothie and vegetarian stuffed peppers.

The Importance of Getting Outside

By Margie Rossi-Holman

When someone you love or care for is diagnosed with Alzheimer's disease, your instincts may tell you to protect them and keep them safe. This means keeping a careful watch on them and making sure they don't get hurt—maybe even keeping them indoors to prevent them from wandering. This is a difficult time and around the world citizens are advised to shelter in place, so getting outside on a regular basis may not be a possibility for you right now. Still, it is important to get outdoors whenever possible, even if it's just on your porch, balcony or backyard. Be sure to cover up safely (face mask, hat or scarf), too.

Whether it's taking a walk in the park, practicing yoga or tai chi in the garden, or reading a book in the backyard, getting outside can provide health benefits that may greatly increase quality of life.

Not only does the great outdoors bring comfort and joy to people who like being in tune with nature, but it also has many benefits for people with Alzheimer's. Just being outdoors provides physical, psychological and social benefits that could help ease some of the symptoms.

Physically, getting exercise outdoors can improve memory and verbal expression and boost physical activity levels. Research also shows taking exercise outside improves sleep and memory and reduces restlessness. Psychologically, going outside can lower stress levels and lift your loved one's spirits, especially if they suffer from high stress and agitation. Socially, spending time outdoors with a loved one can help them feel less lonely and give them more opportunities for social interaction.



To soak up the benefits of spending time outside, try including activities like these into your and your loved one's daily routine.

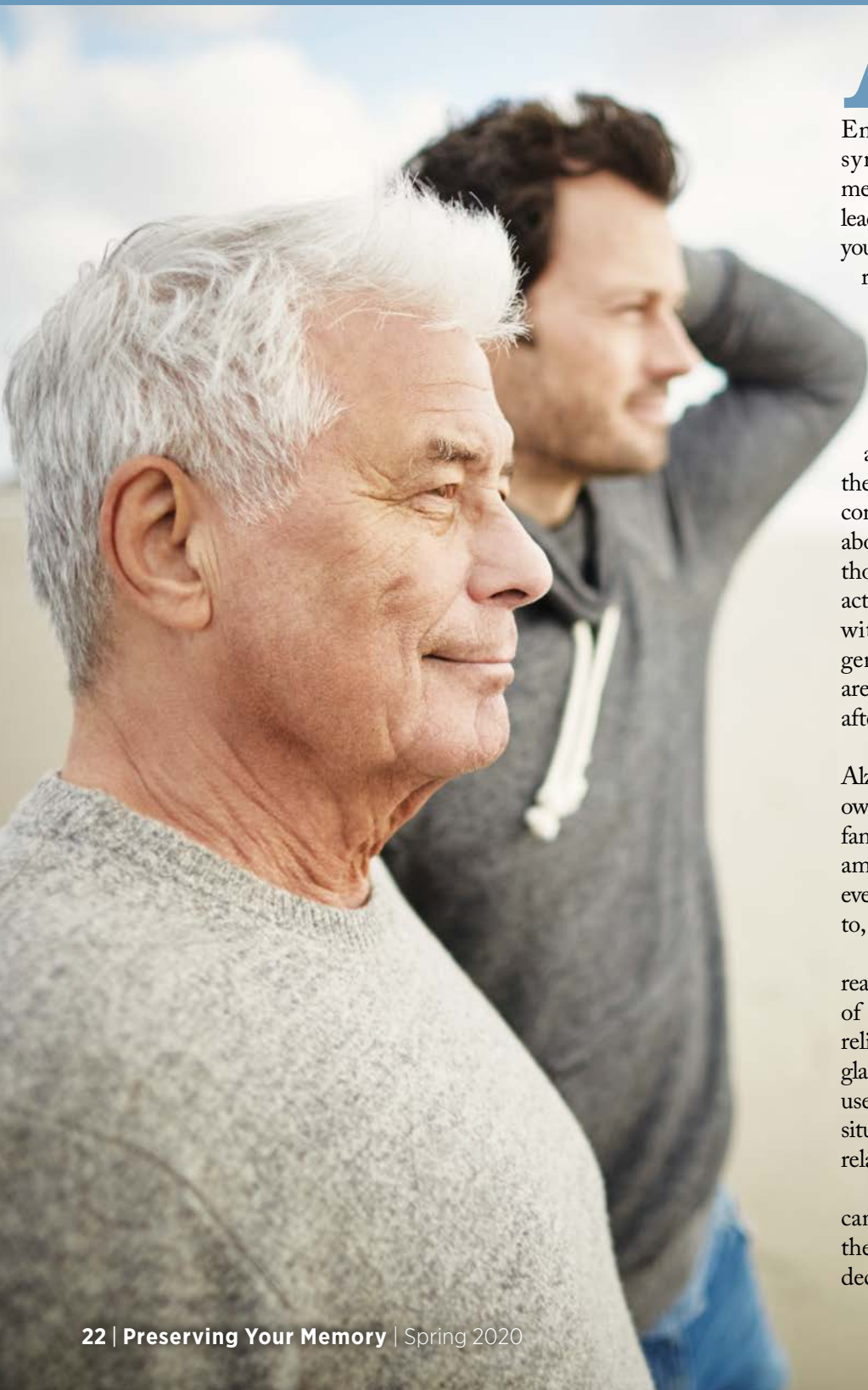


- **Gardening.** This is not only relaxing for someone with Alzheimer's but also keeps them active and their minds focused. Connecting with the earth and tending to something can often help those with memory impairments. It can increase confidence and establishes a sense of purpose.
- **Eating.** Pack a picnic with some simple treats for you and your loved one. Sitting down on a blanket and relaxing in the sun can help your loved one really take in all the benefits of the outdoors. This may encourage them to eat, even if their appetite has decreased.
- **Playing games.** Take some board or card games outside to play. Games and puzzles are known for keeping minds sharp, even in spite of dementia. Being outdoors can also help increase concentration and memory, which can greatly increase their chances of winning the game or completing a puzzle.

Whatever you plan to do outside, be sure to pay close attention to the mood of the person with Alzheimer's. If they become agitated or confused, it's best to head back home (indoors) to comfort and assure the person with familiar surroundings.

PLANNING AFTER AN

By Margie Rossi-Holman



A diagnosis of Alzheimer's disease can have an immense impact on a person's life. Emotional stress combined with symptoms of cognitive changes, memory loss and physical decline can lead to sadness and depression. You and your loved one are likely to experience a range of emotions—grief, loss, anger, shock, fear, disbelief and even relief.

Some people may struggle to deal with these feelings, moving between emotions as they adjust. They may feel afraid about the future, scared about moments of confusion and forgetfulness, and upset about the impact the diagnosis has on those around them. Losing interest in activities that used to be meaningful, withdrawing socially and having a general attitude of giving up on life are all responses that may be triggered after an Alzheimer's diagnosis.

Those around the person with Alzheimer's will also be coping with their own emotional reactions. Caregivers and family members can experience a huge amount of stress. It's important that everyone feels able to, and is encouraged to, express their feelings.

Some people can experience positive reactions when they receive a diagnosis of Alzheimer's disease. They may be relieved to know what's wrong or be glad to be able to plan ahead. Some may use the experience to reevaluate their situation and focus on the activities and relationships that make them happy.

An early diagnosis of Alzheimer's can help a person plan ahead while they are still able to make important decisions about their care and support

Alzheimer's Diagnosis

needs. It gives your loved one a chance to explain to friends and family the changes that are happening in their life. On a practical level, it gives the person with Alzheimer's an opportunity to maintain more control over their life, such as reviewing their financial situation and making arrangements for a lasting power of attorney or an advance directive. These decisions made early on may help them live more independently in their own home for longer and improve their quality of life.

EMOTIONS AND FEELINGS

After a diagnosis of Alzheimer's, it's not unusual for the person to experience changes in their emotional responses. They may have less control over their feelings and how they express them. For example, a loved one may be irritable or prone to rapid mood changes or overreactions to things. They may also appear distant or uninterested in things that used to give them joy. These changes are often difficult for family members and caregivers to deal with. It can help if they remember that they are partly caused by damage to the person's brain. Someone with Alzheimer's may react more emotionally (become tearful or upset) to a situation than might be expected. This may be because some of their factual memories or the ability to think clearly about a situation has declined. It's important to look beyond the words or behaviors you can see to the feelings the person might be trying to express. Strong emotions may also be caused by unmet needs.

It's vital to address these feelings and be proactive in decreasing them. Focusing on activities that provide enjoyment and a sense of meaning is a great way to stave off depression and improve quality of life. Encouraging individuals with Alzheimer's to take part in things that bring them joy provides a positive distraction and can help them retain cognitive skills. Although the physical and cognitive deterioration caused by the disease can alter a person's personality and compromise their ability to function independently, it does not eliminate a person's ability to be happy. A comfortable environment, meaningful activities, a healthy diet, regular exercise and an active social network can help relieve depression and improve a loved one's quality of life.

CONFIDENCE AND SELF-ESTEEM

After a diagnosis of Alzheimer's disease, a person may feel insecure and lose confidence in themselves and their abilities. They may feel they are no longer in control and may not trust their own judgment. They may also experience the effects of stigma and social demotion—not being treated the same way by people—as a result of their diagnosis. All this can have a negative impact on the person's self-esteem.

Alzheimer's can also have an indirect effect on someone's self-esteem by affecting other areas of a person's life. Health issues, financial circumstances, employment status and relationships with those around them may suffer.

But some people form new relationships as a result of their diagnosis through activities such as attending a class or a support group. High self-esteem allows some people to cope better with chronic health conditions.

SUPPORTING A LOVED ONE TO MAINTAIN SELF-ESTEEM

- Offer the person plenty of praise and encouragement. Celebrate successes and focus on positives.
- Avoid harsh criticism or belittling comments.
- Ensure your loved one time to do the activities they enjoy and that give them purpose.
- If a person makes a mistake, try to be as supportive as possible.
- Help your loved one maintain existing social relationships and form new ones by facilitating joint activities with friends and family, joining hobby groups, and encouraging conversation.

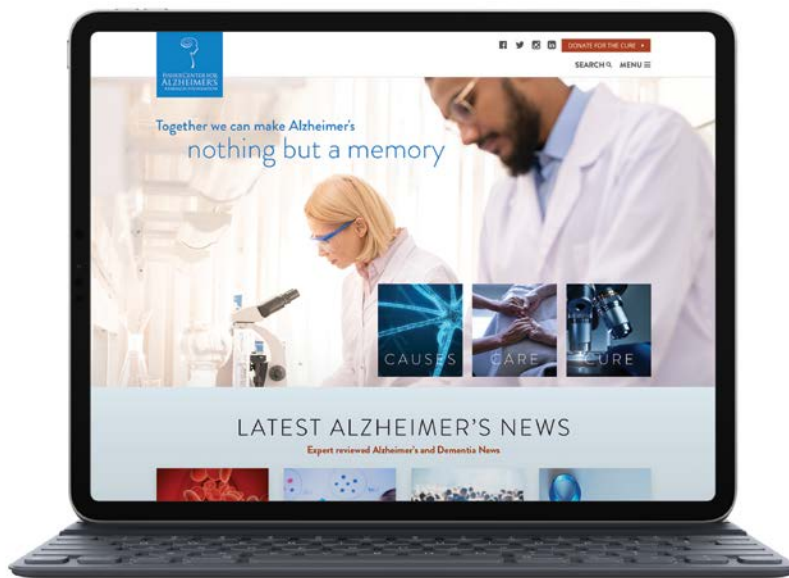
There are a number of talking therapies and—if needed—drug treatments available for depression and anxiety.

Discover Helpful Resources in Your Area

Find support for you and your loved one where you live with the Fisher Center Foundation's Alzheimer's Resource Locator. You can find it at alzinfo.org/resource-locator/.

Resources

The Fisher Center for Alzheimer's Research Foundation's Information Program provides public education and disease awareness through traditional media conduits, the Internet and social networks.



WEBSITE

The heart of the Foundation's national comprehensive Alzheimer's Information Program is the Foundation's website, **ALZinfo.org**, which continues to spearhead efforts to increase awareness of and education about Alzheimer's disease to the general public. The website provides in-depth information on the most current research studies, treatments and disease management approaches. It incorporates the latest in scientific and social research with a unique Resource Locator feature for finding appropriate services in specific areas. Visitors can find doctors, nurses, disease centers, elder law attorneys, geriatric caregivers, home health agencies, Medicare information, aging agencies and more. The website is complemented by an **800-ALZINFO (259-4636)** phone system that provides the same services to those who do not have access to the Internet.

Find out about Alzheimer's through our website:

- Learn about the symptoms and stages of Alzheimer's.
- Understand the differences between Alzheimer's and dementia.
- Discover treatment options for slowing down the progression of the symptoms and managing the behavioral symptoms.

- Read the latest Alzheimer's research news.
- Ask our researchers questions that arise in "Ask the Experts": alzinfo.org/research/ask-our-experts.

Sign up for news and articles on top stories in the Alzheimer's community, free!

Right now, becoming a free participant in the **ALZinfo.org** community also entitles you to:

- Email alerts about new features
- Content updates
- Breaking news and special events
- Advance notice of special chat events with leading experts in Alzheimer's care and research
- Invitations to educational programs that we develop with our partners, such as Internet support groups or community workshops on topics related to Alzheimer's

Sign up to receive *Alzheimer's Research News You Can Use*, the most reviewed Alzheimer's and dementia news on the Web, for FREE.

alzinfo.org/news/e-newsletter

CAREGIVER'S CORNER

- Join our support group, where you can read caregiver stories (alzinfo.org/treatment-care/stories) and submit your own to info@alzinfo.org.
- Use our Resource Locator (alzinfo.org/resource-locator) to find doctors, specialists, home health agencies, nursing homes, hospice care and other resources using a ZIP code.
- Get caregiving information on long-term planning, home modification, cognitive stimulation, physical exercise, music and art therapy, and much more (alzinfo.org/treatment-care/caregivers-corner).

PRESERVING YOUR MEMORY®

Preserving Your Memory® magazine is a triannual publication with a circulation of 52,000 copies per issue. To get the most out of our national magazine, we distribute to a targeted combination of high-prescribing Alzheimer's disease healthcare providers' office waiting rooms. This approach allows us to reach more than 530,000 Americans per year, and we've reached 10.6 million since the magazine's inception.

The magazine addresses concerns of readers who may not currently be affected by the disease and provides information about Alzheimer's and how to take the necessary steps to adequately prepare if they receive an Alzheimer's diagnosis. The magazine has proven to be an excellent platform to educate the public about the need, both financially and legally, to plan and set certain protocols in place. Articles on health proxies, living wills, powers of attorney and long-term healthcare insurance have been included in each issue to support both caregivers and those living with Alzheimer's disease.

Also, our editorial content is reviewed by the scientific staff at The Rockefeller University for accuracy and reliability. The studies and findings help readers make informed decisions about medical treatment, care options, the present state of Alzheimer's research, and positive steps they can take to both enhance their cognitive function and better prepare for successful aging.

Each issue includes advice for dealing with everyday challenges and what to expect, features on the latest in disease research, and information on where to go for help, as well as caregiving tips and strategies for healthy living.

Preserving Your Memory® has received a National Health Information Award for health promotion/disease prevention in the same division as national publications such as *Fitness* and *Parents*.

Subscribe to receive the Fisher Center's glossy color magazine three times a year and get the latest research facts, advice on healthy living and caregiving, and tips to sharpen your memory.

alzinfo.org/pymmag



MEMORY WALL

Losing someone is devastating, however long or well-lived his or her life was. You can keep your loved one's memory alive by uploading a photo, bio and audio for yourself and others to treasure.

alzinfo.org/memory-wall

Caring for Yourself AS A CAREGIVER

By Maryann Foley

Caring for a loved one with Alzheimer's disease can be a challenge. You are constantly dealing with the ups and downs of the disease every minute of every day. You may feel frustrated, angry or helpless. You might turn to harmful or risky behaviors, like poor eating habits or substance use, to cope with the stress. In fact, studies show that caregivers are at higher risk for emotional, physical and mental health problems. You may get lost in the shuffle and forget about taking care of yourself. Your loved one is depending on you. You need to make yourself a priority. But how? Here are some things you can do to safeguard your physical, emotional and mental health.

TAKING CARE OF YOUR PHYSICAL HEALTH

You may be asking yourself, "How can I find the time for myself with all I have to do?" The answer is, just as you plan your loved one's care, you need to plan for "me time" every day. It doesn't have to be a lot of time. A small break, such as 20 minutes while a friend is visiting, can work wonders for your health. Using this time to add some exercise into your daily routine, such as walking, adds to the benefits.





Whether you meet in person or online, you can share your feelings and experiences with others who are in a similar situation. And you can even learn some tips about how others deal with situations.

Lack of sleep can lead to exhaustion and little energy. Low energy has been linked to higher irritability levels, sadness, anger and stress. Work to get 7 to 9 hours of sleep each night. Consider using relaxation exercises or meditation to help you decompress before bed. Reading a book or taking a warm bath also might help. If getting adequate sleep is not possible, try taking a short nap during the day. And if your loved one stays awake at night, arrange for extra help to care for them while you sleep.

EATING HEALTHY MAY BE A CHALLENGE

You might opt for fast food, skip meals or fill up on junk food because you're pressed for time. Stock up on nutritious, easy-to-grab foods if time is a problem or you tend to skip meals. Also try adding a healthy choice such as a piece of fruit or leafy green vegetable to a meal each week. Over time, these healthy choices can add up and become a habit.

Seeing your healthcare providers regularly is a must. Be sure to tell them that you are a caregiver, because this role raises your risk for health problems such as high blood pressure, heart disease, arthritis and depression. If you start to feel sick, see your provider sooner rather than

later. And get the necessary vaccines, such as the flu vaccine, to lower your chances of becoming ill. Also have routine screenings to minimize your risk. You are less of a help to your loved one if you get sick.

TAKING CARE OF YOUR EMOTIONAL AND MENTAL HEALTH

Caring for a person with Alzheimer's disease can be emotionally and mentally draining as well. Frustration, guilt and anger can take a toll. It's OK to ask for help when you need it. Remember, you are not alone, and you don't have to do everything yourself.

- Look into home care agencies to help with your loved one's physical care or provide care while you take a needed break.
- Check out the local community for resources, such as senior or adult daycare centers.
- Ask others, such as family members, friends or neighbors, for specific help. Often, people want to help, but they don't know what they can do. Maybe someone could cook a meal for you, run errands or take your loved one out for a walk.
- Consider joining a support group for caregivers of loved ones with Alzheimer's disease.

Recharging emotionally and mentally also means taking time for yourself. Keep up with your hobbies and interests. Spend time with friends. The constant tasks of caregiving can leave you feeling isolated. Staying connected helps lessen these feelings. And it helps take your mind off things for a short time, too.

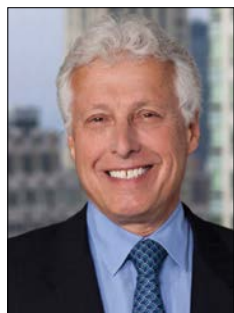
As a caregiver, it's important to acknowledge your feelings. These feelings are normal. Tell yourself that you are doing the best you can. No one is perfect, and neither are you. And that's OK. Set realistic goals and work to control what you can. If you find yourself having problems coping, feeling sad or depressed, or just needing to talk with someone, seek out professional help, such as a counselor, clergy member or social worker, to deal with these feelings.



The Fisher Center for Alzheimer's Research

COMMITTED TO FINDING

Each Trustee has a personal stake in the mission of the Foundation.



Martin Edelman

Vice Chairman, 22 years;
Counsel to Paul
Hastings LLP.



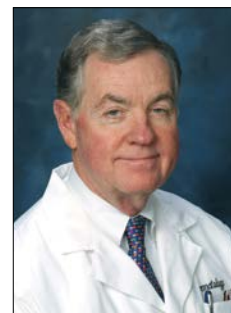
Howard W. Lutnick

Vice Chairman, 19 years;
Chairman and CEO,
Cantor Fitzgerald L.P. and
BGC Partners Inc.



Dr. Manny Alvarez

Member, 5 years;
Senior Managing Editor
of Fox News Health



**Lt. Gen. Dr.
E. Ratcliffe
Anderson, Jr.**

Member, 19 years;
Served as the USAF
Surgeon General



Hadley M. Fisher

Member, 12 years; third-
generation Partner of
Fisher Brothers



Betsy Gotbaum

Member, 11 years;
Executive Director of
Citizens Union



**James L.
Nederlander**

Member, 19 years;
President of the
Nederlander Organization



Richard J. Salem

Member, 15 years; Founder of
Enable America to eliminate
employment barriers for
disabled Americans

Foundation: A CURE

Q & A



Barry R. Sloane

Chairman & Treasurer,
19 years; Chairman,
President, and CEO
of Century Bank and
Century Bancorp, Inc.

How did you get involved?

ANSWER: Zach Fisher was a dear friend and mentor.

Why do you continue to serve on the board?

ANSWER: To advance the process of curing
Alzheimer's disease.

**Do you know anyone with Alzheimer's?
If so, who?**

ANSWER: Yes. My mother.

**Where would you like to see the Foundation
5 years from now?**

ANSWER: As one of the medical research foundations
responsible for the successful clinical treatment of
Alzheimer's disease.

Q&A

COMMITTED TO



David H.W. Turner

Secretary, 16 years;
Chief Financial Officer,
KPMG LLP

How did you get involved?

ANSWER: I was introduced to the Foundation through its founder, Zachary Fisher. At the time I was heavily involved with the Intrepid Museum Foundation, which was also founded by Zachary. He talked to me about his mission to rid the world of Alzheimer's, and his passion inspired me to join the Fisher Center board.

Why do you continue to serve on the board?

ANSWER: The mission of the Fisher Center is profound in its relentless desire to rid the world of one of the most evil diseases. I am inspired by its ability to corral a real impact through the participation of its board members, the incredible scientists working at the center and its collaboration with The Rockefeller University. These factors allow the board to have a real opportunity to make a difference.

Do you know anyone with Alzheimer's? If so, who?

ANSWER: Several friends over many years, and recently my father was diagnosed.

Where would you like to see the Foundation 5 years from now?

ANSWER: Having made significant progress in either curing or delaying the onset of Alzheimer's.

FINDING A CURE



Gerry Byrne

Member, 11 years; Vice Chairman, Penske Media Corp.

How did you get involved?

ANSWER: Zachary and Elizabeth were close friends. My wife and I were with them when Elizabeth had a significant episode that amplified her condition.

Why do you continue to serve on the board?

ANSWER: Helping to generate research support will impact the progress in finding a cure.

Do you know anyone with Alzheimer's? If so, who?

ANSWER: My mother had Alzheimer's for 8 years and a number of friends have been afflicted as well.

Where would you like to see the Foundation 5 years from now?

ANSWER: In 5 years I would hope the Foundation has helped find a path to a cure and, if that be the case, use Foundation revenue to support care centers as they evolve.



Dr. Moshe Shike

Member, 19 years; Director of Clinical Nutrition, Sloan-Kettering Cancer Center; Professor, Weill Cornell Medical College

How did you get involved?

ANSWER: I was Mr. Fisher's doctor. He asked me to join the board.

Why do you continue to serve on the board?

ANSWER: As a way to honor his memory and wish.

Do you know anyone with Alzheimer's? If so, who?

ANSWER: Yes, many.

Where would you like to see the Foundation 5 years from now?

ANSWER: Broadening the efforts to support research.

Q&A

COMMITTED TO



Lucretia Holden

Executive Director
Since December 2016

How did you get involved?

ANSWER: I learned that the Foundation was in need of a Senior Vice President through a mutual acquaintance of a board member. I got involved with the Foundation because, like many other families, my family has been affected by Alzheimer's disease. After meeting the President and the team, I knew this was where I needed to be at this stage of my career and life.

Why do you continue to work for the Foundation?

ANSWER: To help in the quest to find a cure for Alzheimer's disease. I've met so many people working in the field, researchers and executives, who all want the same thing: to find a cure. They're willing to share information with others because they believe we're not going to find it without helping each other. I couldn't agree more.

Do you know anyone with Alzheimer's disease? If so, who?

ANSWER: Yes, like the alarming number of families, my family has been devastated by the disease. I also have friends who have lost loved ones to the disease and/or suspect that they are experiencing symptoms of the disease.

Where would you like to see the Foundation 5 years from now?

ANSWER: Five years from now, I hope to see the Foundation still running a responsible operation and maintaining its superb rating, with a better understanding of what causes the disease, so that we can manage it better if a cure has not been solidified. I'd like to see the Foundation expand its resources for caregivers.

FINDING A CURE



Christina Hall
Development and
Communications Director
Since March 2017

How did you get involved?

ANSWER: I got involved with the Foundation because I have a passion to fight Alzheimer's disease. My fraternal grandmother passed away from Alzheimer's disease in 2015. I witnessed her slowly progress down this disease's relentless path. When she passed, I was determined to do all I can to ensure no other family experiences the pain and suffering my family endured.

Why do you continue to work for the Foundation?

ANSWER: I have always had a passion to help others and support nonprofits. With more than 1.5 million nonprofits in the U.S., finding a worthy nonprofit to support comes a dime a dozen. But finding an organization that stands firm to its core values while allocating funding directly to the mission is not always as easy to come by. I am proud to say that working at the Fisher Center, I have witnessed this Foundation carry out both. I believe in the work that the Foundation is doing, and I know that the research the Foundation is funding will provide the best hope to one day finding a cure. This is why I will continue to support the Foundation through my efforts.

Do you know anyone with Alzheimer's disease? If so, who?

ANSWER: Yes, I have known several people with Alzheimer's disease—most notably my grandmother, as mentioned previously.

Where would you like to see the Foundation 5 years from now?

ANSWER: In 5 years, I would like to have obtained a high level of constituent support so that the Foundation can further expand its funding in the area of Alzheimer's research, in order to assist in the pursuit of identifying the causes of this disease so that we can identify a cure more quickly.

Q&A

COMMITTED TO



Rebecca Libed

Database Specialist/Analyst
Since September 2018

How did you get involved?

ANSWER: I was invited for an interview by one of my previous colleagues whom I worked with at another organization. I brought my fundraising, finance and HR background, which met the current needs of the Fisher Center Foundation (FCF). Maybe quite indirectly, I hope that my work at FCF ultimately will impact those affected by Alzheimer's disease.

Why do you continue to work for the Foundation?

ANSWER: As one of the staff who hears stories of our donors and constituents, I sympathize with the sorrows and hardships that caregivers and their loved ones go through. Alzheimer's is a horrible disease. It affects not just the one diagnosed with the disease but the entire community around them.

Do you know anyone with Alzheimer's disease? If so, who?

ANSWER: I've known close friends who had Alzheimer's and have since passed away. I know how family members changed their living situations so that their loved ones could live with them, so that they could care for them on a daily basis as the disease progressed. There is a friend whom I knew growing up. I remember when I went to visit her during the last stages of the disease, she didn't know who I was, but she said to me, "I know you, don't I, and I love you, don't I?" Yes, she did. She helped my mom learn about how to be a parent, she was one of the first people at the hospital who held me after my mom gave birth in the Philippines, and we spent summers with her family in Georgia when we came to the United States.

Where would you like to see the Foundation 5 years from now?

ANSWER: I envision FCF programs funding diverse methods of research toward a holistic look at how we will find a cure, determine the cause and provide care. Ultimately, our goal is to work ourselves out of a job. We can work together to make it happen.

FINDING A CURE



Jerry Louis

Web Developer/
Graphic Designer
Since July 2006

How did you get involved?

ANSWER: While looking for a position as a graphic designer, I found a job listing from the Foundation. I initially did not know much about the Fisher Center, but when I did my research, I learned about the mission and the people behind the Foundation, Zachary and Elizabeth Fisher, and Michael Stern, the president at the time. They were well-respected and philanthropic. The position further allowed me to expand my creative skills, which allowed me to later add to my responsibilities at the Foundation, which soon led to me becoming the Web Developer as well.

Why do you continue to work for the Foundation?

ANSWER: Being here for 13 years, I can say that I believe in the company's mission to find a cure for Alzheimer's disease. Almost 90% of the funds raised go toward the mission, which says a lot about an organization and where their priorities are, especially when we are funding world-renowned scientists, including the late Nobel Laureate Dr. Paul Greengard. Furthermore, it allows me to continue to do what I love for a great cause.

Do you know anyone with Alzheimer's disease? If so, who?

ANSWER: My grandmother and my great-aunt, who raised me, both suffered from Alzheimer's before they passed. Though they were not clinically diagnosed with Alzheimer's, they both began to exhibit the symptoms of memory loss and the loss of cognitive abilities, which affected their day-to-day life.

Where would you like to see the Foundation 5 years from now?

ANSWER: As the Foundation continues to expand its footprint across the nation, I would like to see that growth expand to rural places and minority communities where Alzheimer's is believed to be a normal part of aging. These places should be equipped with more resources and tools to help better care for loved ones.



Tips to Prevent Wandering

By Maryann Foley



Wandering is a common problem for people with Alzheimer's disease. Estimates show that about 60% of people with Alzheimer's wander. As a caregiver, the thought of your loved one leaving the house alone and getting lost can be scary. But why does this happen? The reasons are many. Anxiety, restlessness, boredom and physical discomfort are a few examples. Or the person might just be confused. Here are some tips to help lower the chances that your loved one will wander:



Be prepared. Have an emergency plan in place before your loved one might wander. This plan should include:

- A list of people and phone numbers to call for help
- A recent close-up photo of your loved one
- Updated medicine information about your loved one
- A list of places they might go



Make sure your loved one has some type of identification to let others know who they are, what their problem is and where they live. Think about labeling their clothes to help identify them. Location devices and alert programs are also helpful in finding your loved one should they wander off.



Make sure that your loved one's basic needs are met. This means they don't have to go to the bathroom, aren't hungry or thirsty, and aren't sleepy or in pain.



Have a routine or daily activity plan to keep the person with Alzheimer's involved. Focus on tasks that have a purpose and draw on something from their past. Plan specific activities for the times when your loved one is most likely to wander.



Secure any exits, indoors and out. Keep doors and windows locked. Place door locks high up or down low so that they are not at eye level. Install safety devices or alert systems that sound if a door or window opens. For the outside, consider installing a fence with a locked gate.



Distract your loved one's attention to the door by changing its appearance. Place posters, photos or mirrors on the back of the door. Consider using wallpaper on the door to match and blend into the walls. Or try placing signs that read "Stop" or "Do not enter" on the door.

With some preparation and anticipation, you can help prevent your loved one from wandering. If they do wander in spite of your efforts, call 911 and report it immediately.

CURE

Finding a **cure** for Alzheimer's disease was the ultimate dream of late founder Zachary Fisher, and the mission of The Fisher Center for Alzheimer's Research Foundation.



ZACHARY FISHER:

Photo above: Zachary Fisher in front of the USS *Intrepid*. Courtesy of Dr. Sunnie Kenowsky.

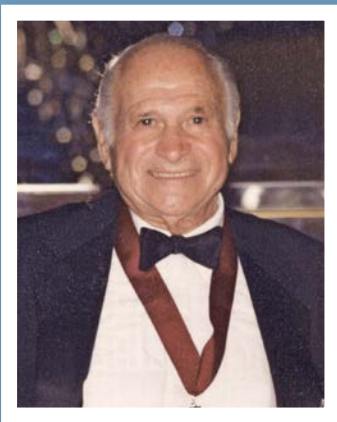
Photo below: Zachary Fisher Courtesy of Dr. Sunnie Kenowsky.

Devoted Husband, Caregiver and Philanthropist

By Sam Gaines

Businessman Zachary Fisher had a profound impact on the search for the causes of and a cure for Alzheimer's disease. His legacy endures today, as the Fisher Center for Alzheimer's Research Foundation, which he founded, continues to support the work of the Fisher Center Laboratory at The Rockefeller University.

Born to Jewish immigrant parents in Brooklyn in 1910, Fisher followed in his brick mason father's footsteps, beginning in the construction industry at age 16. Fisher and his brothers, Larry and Mason, formed Fisher Brothers, which went on to become one of the real estate industry's most prominent residential and commercial developers, owning more than 5 million square feet of office space.



Philanthropy

Fisher was prevented from active service in World War II due to a leg injury, but that didn't prevent him from supporting our nation's military. He used his considerable construction skills to help the U.S. Coastal Service build coastal fortifications during the war. From that time onward, Fisher's patronage and support of the U.S. armed forces became a predominant theme in his life.

"He was very devoted to the military. He was unable to serve during WWII, and regretted he couldn't enter the military service himself, but he wanted to help the country," explains Dr. Sunnie Kenowsky, Co-director of the Fisher Alzheimer's Disease Education and Resources Program at NYU School of Medicine and Clinical Instructor of Psychiatry at NYU Langone Medical Center. Dr. Kenowsky and her siblings were "adopted" by the Fishers as children. When Sunnie's mother could no longer care for her and her sister, her mother's sister and husband (Elizabeth and Zachary) agreed to take care of them. "We were nieces by marriage," she says. "They helped raise us as if we were their own part-time children. They were like a second mother and father to me."

INTREPID museum FOUNDATION

In 1978, Fisher took another step forward in supporting the U.S. armed forces by founding the Intrepid Museum Foundation, whose role was to save the historic aircraft carrier USS *Intrepid* from the scrap heap. After 4 years of his leadership with the Foundation, the Intrepid Sea, Air and Space Museum opened in New York City. It is now the world's largest naval museum.

ARMED services FOUNDATION

The same year, Fisher established the Zachary and Elizabeth M. Fisher Armed Services Foundation. Through the Foundation, Fisher made significant contributions to the families of the victims of the Marine barracks bombing in Beirut, Lebanon, in 1983. The Foundation continues to support military families who have lost loved ones under tragic circumstances. Today, it also provides scholarship funds to active and former service members and their families. The work of the Armed Services Foundation is now carried out through the Intrepid Fallen Heroes Fund.

FISHER house FOUNDATION

In 1990, Zachary and Elizabeth M. Fisher established the Fisher House Foundation. The program has constructed "comfort homes" for the families of hospitalized military personnel. The idea was to provide a "home away from home" for families of military personnel undergoing treatment at military or Department of Veterans Affairs (VA) hospitals.

Nearly 90 Fisher Houses are now operating at military bases and VA medical centers in the U.S., Germany and the United Kingdom. The



Zachary and Elizabeth M. Fisher in front of one of the Fisher Houses, which serve military personnel in need of medical care. Photo courtesy of the Fisher House Foundation.

program has provided more than 8 million days of lodging for 368,000 military families, saving them an estimated \$451 million since the program's inception.

Fisher supported many other important causes during his lifetime. He supported the families of New York City firefighters who lost their lives in the line of duty. He served as Honorary Chairman of the board of directors of the Marine Corps-Law Enforcement Foundation and supported the Coast Guard Foundation, the Navy League and other military charities. He also established the annual Chairman of the Joint Chiefs of Staff Award for Excellence in Military Medicine.

In addition, he served as a major supporter of the Metropolitan Opera, Temple Israel, the Jewish Institute for National Security Affairs, the George C. Marshall Foundation, the Margaret Thatcher Foundation, the Reagan Presidential Library, the United Jewish Appeal and many other organizations. He was on the board of Carnegie Hall and several other institutions. He received honorary doctorate degrees from the Massachusetts Maritime Academy and the Uniformed Services University of the Health Sciences.

"Zachary Fisher was a builder," says Dr. Kenowsky. "He always wanted to build something up in life, whether it be skyscrapers through the family business, or in building up the people around him. It was part of who he was."



The Fisher Center for Alzheimer's Research Foundation

Partnering with David Rockefeller, Fisher established the Zachary and Elizabeth M. Fisher Center for Alzheimer's Research Foundation in 1995 after his beloved wife, Elizabeth, developed Alzheimer's disease. Elizabeth Fisher had been suffering from Alzheimer's since 1990.

As he said at that time, "I know that an answer will not be found in time to help my beloved Elizabeth, but I want to do what I can to find a cure so that others will not have to suffer through the ravages of this disease as my wife and I have had to."

To this day, the Foundation operates the nation's largest and most technologically advanced Alzheimer's research lab, which is housed at The Rockefeller University in New York City. The laboratory was led from its inception by the late Nobel Laureate Dr. Paul Greengard until his passing in 2019. (You can read more about Dr. Greengard's life and legacy in the Summer 2019 issue of *Preserving Your Memory*.)

In addition to its support of the laboratory, the Foundation publishes educational materials, including *Preserving Your Memory*[®] magazine, which has been published continually since 2007. The Foundation's Keeping Your Mind Sharp program teaches seniors about brain health and has been translated into Chinese, Korean, Japanese, Hindi and Urdu. In November 2016, the Foundation published a children's book, *Why Can't Grandma Remember My Name?*, which was written by the late Foundation President and CEO Kent Karosen and Chana Stiefel. Over the years, the Foundation has helped reach more than 10 million people through its programs and publications.

Caregiver

When his wife, Elizabeth, was diagnosed with Alzheimer's disease in 1990, Zachary marshalled his resources to provide the very best of care for his beloved. Zachary's devotion to his wife (and hers to him) marked their long marriage.

Elizabeth was every bit the match for Zachary's dynamism, innovation and pursuit of excellence in all they did. Elizabeth, born in Allegheny County, Pa., was a Ziegfeld girl and served overseas with the United Service Organizations in World War II, helping entertain the troops, visiting the wounded in field hospitals and volunteering for the Veterans Bedside Network. "Elizabeth was very disciplined in her lifetime. She was very much into education, teaching and learning, and was always a very innovative thinker. If something new came out, she would check it out. She always used to say when we were little, 'I want to be the first woman in space,'" says Dr. Kenowsky. "She would go anywhere. She was very adventurous. But she was also very refined, very much a lady. She was his best supporter and counselor. They absolutely loved each other, and even when times were tough, they would look to each other for support. They were great role models, both very accomplished and both had big dreams and profound goals. They would always find a way to achieve their dreams, to get it done. Elizabeth taught me to be determined and to pursue my dreams."

"He provided care like no other. He always made sure she had the top of the top of medical and nursing care to keep her in excellent condition," says Dr. Moshe Shike, Director of Clinical Nutrition, Memorial Sloan Kettering Cancer Center, and a professor at Weill Cornell Medical College. Dr. Shike was a close friend of the couple and personal physician to Zachary Fisher.

"He took her everywhere he went—to the restaurants, the opera ... He was totally dedicated and loving toward her."

Top: Zachary and Elizabeth M. Fisher on their wedding day.

Middle: Zachary and Elizabeth enjoyed many a warm moment together.

Bottom: Elizabeth served with the USO.

Photos courtesy of Dr. Sunnie Kenowsky.

Zachary Fisher (center, seated) with top military brass. Fisher was a major supporter of armed forces charitable efforts. Photo courtesy of the Fisher House Foundation.



Honors

Fisher was celebrated with awards and honors throughout his lifetime for his philanthropy and leadership. **In 1996**, he was recognized as the American College of Healthcare Executives Honorary Fellow at the ACHE's Convocation Ceremony.

In 1997, the U.S. Navy named the Bob Hope-class cargo ship the USNS *Fisher* (T-AKR-301).

In 1998, he received the Presidential Medal of Freedom from President Bill Clinton on behalf of his untiring support of the young men and women of the U.S. armed forces. He was also honored with the Horatio Alger Award, the Volunteer Action Award, the Presidential Citizens Medal, the Senior Civilian Award from the Chairman of the Joint Chiefs of Staff and the Secretary of Defense, as well as other top civilian awards from each branch of the military.

Fisher was recognized separately by presidents Gerald Ford, Jimmy Carter, Ronald Reagan, George H.W. Bush and Bill Clinton, as well as Margaret Thatcher and Yitzhak Rabin, for his support of charitable organizations in the U.S.

In December 1999, President Clinton conferred honorary veteran status in the U.S. armed forces upon Fisher. Bob Hope is the only other American who has been honored with this designation.

Zachary Fisher led a full life of commitment and service to his family, the military and the betterment of our country. When he passed away on June 4, 1999 (before his beloved Elizabeth passed), he left a profound legacy that will never be forgotten.

To Dr. Kenowsky, her Uncle Zachary and Aunt Elizabeth are nothing less than the inspiration for her career. "My dream is to help people who are living with dementia. It is really possible to continue living your life, even with this disease," she says. "An enjoyable, meaningful life is still possible. I see it all the time in my private practice and in my research studies. It's all about living our lives and moving forward and helping and loving each other."

Above: Zachary and Elizabeth M. Fisher outside the USS *Intrepid*. Photo courtesy of the Fisher House Foundation.

Below: Dr. Sunnie Kenowsky with her aunt, Elizabeth Kenowsky Fisher.

Bottom: Dr. Kenowsky with the Fishers.

Photos courtesy of Dr. Sunnie Kenowsky.



Why Are Women More Susceptible to Alzheimer's Disease Than Men?

By Kevin Gault

For years, it has been a question with no clear answer: Why are women more likely to get Alzheimer's disease than men?

The statistics are striking. At age 65, women have a 1 in 5 chance of developing Alzheimer's, as opposed to a 1 in 11 chance for men. Of the more than 5 million people living with the disease in the U.S., 64% are women. Women in their 60s are twice as likely to develop Alzheimer's than breast cancer. In one study, the disease progressed twice as quickly in women than in men.

NO EASY ANSWERS

A possible reason for this disparity between women and men is age—on average, women live longer than men (81 years for women; 76 for men), so they might be more likely to develop the disease.

But several other factors—including mental and physical health—might be at the core of the problem. Women are more likely to develop depression, which research shows can lead to an increased risk for dementia.

Physical activity may also play a role in susceptibility to Alzheimer's. Some scientists state that since women tend to exercise less than men, they have a higher rate of Alzheimer's disease.

MAYBE GENETICS?

Then there's genetics. Some researchers view a gene called APOE4 as the culprit, linking it to increased risk for Alzheimer's in both men and women, but studies have shown that women with the gene had an even greater risk of developing the disease than men.

Hormone fluctuations during menopause may interact with APOE4 and could help explain why women's brains are more susceptible to Alzheimer's. Between ages 40 and 50, estrogen, progesterone and testosterone levels drop in women. Often, these changes cause hot flashes or depression, but their effects could have a lingering impact on the brain as well.

Research has shown that hormone therapies used after menopause do not have an effect on women's likeliness to develop Alzheimer's. But when hormones are added as women transition into menopause, they can be effective in lessening the chances of developing the disease.



WOMEN CAN TAKE ACTION

Just because these factors can make women more susceptible to Alzheimer's doesn't mean they must resign themselves to being a victim of the disease. Women can prevent or delay the onset of symptoms by taking action.

Pauline Maki, PhD, Professor of Psychiatry, Psychology, and Obstetrics and Gynecology at the University of Illinois at Chicago, emphasizes that stress—whether hormonal, social or physical—can take a serious toll on at-risk populations as they move into midlife: “What you do at midlife really determines your risk for Alzheimer's. There's no cure ... it's all about prevention.”

Here are some tips for preventing or delaying the symptoms of Alzheimer's:

- **Exercise.** “The most convincing evidence is that physical exercise helps prevent the development of Alzheimer's or [helps] slow the progression in people who have symptoms,” says Gad Marshall, MD, Associate Medical Director at the Center for Alzheimer Research and Treatment at Brigham and Women's Hospital. The common recommendation is 30 minutes of moderately vigorous aerobic exercise, 3 to 4 days per week.
- **Eat a Mediterranean diet.** This diet includes fresh vegetables and fruits; whole grains; olive oil; nuts; legumes; fish; moderate amounts of poultry, eggs and dairy; moderate amounts of red wine; and red meat only sparingly. “This has been shown to help thwart Alzheimer's or slow its progression,” says Dr. Marshall. “A recent study showed that even partial adherence to such a diet is better than nothing, which is relevant to people who may find it difficult to fully adhere to a new diet.”
- **Get enough sleep.** “Growing evidence suggests that improved sleep can help prevent Alzheimer's and is linked to greater amyloid (plaque) clearance from the brain,” says Dr. Marshall. Aim for 7 to 8 hours per night.

- **Learn new things.** Research has shown that keeping the brain active and challenged could ward off the symptoms of Alzheimer's. Activities such as learning a second language or how to play a musical instrument, playing board games or online memory games, solving crossword puzzles or taking adult education classes are good choices.
- **Connect socially.** “If you stay connected, you have a better shot,” says Valerie Crooks, Clinical Trials Administrative Director at Southern California Kaiser Permanente Medical Group. “Whenever we have even the most basic exchange, we have to think about how to respond, and that stimulates the brain. People who have three or more relationships tend to do better.”
- **Drink—but just a little.** Christy Tangney, PhD, Associate Professor of Clinical Nutrition at Rush University Medical Center in Chicago, says that moderation is the key: “It is a friendly balancing act. Social drinking can be a very positive thing as long as it is not excessive and doesn't exceed one drink per day for women or two drinks for men. Light to moderate drinking appears to benefit cognitive performance.”

While certain factors may put women at a disadvantage regarding Alzheimer's, researchers still have a long way to go to clearly understand why.

“Our analyses show that women with mild memory impairments deteriorate at much faster rates than men in both cognitive and functional abilities,” says Katherine Amy Lin from the Duke University Medical Center. “These results point to the possibility of undiscovered gender-specific genetic or environmental risk factors that influence the speed of decline. Uncovering those factors should be a high priority for future research.”

After an Alzheimer's Diagnosis: Now What?

By Tamekia Reece

Learning that you or a loved one has Alzheimer's disease is always difficult. After the diagnosis, there's a flood of emotions: disbelief, anger, fear and confusion. What's next? How do you prepare for the rest of your life? Knowing what steps to take and starting as early as possible can help make things easier in the long run. Here's what to do upon receiving an Alzheimer's diagnosis.

GET MORE INFORMATION

Finding out as much as you can about Alzheimer's disease will help you know what to expect as the disease progresses. There are many sources to help educate yourself and loved ones, including books, websites (such as ALZinfo.org) and Alzheimer's organizations. Also, many local hospitals offer educational programs on Alzheimer's and dementia.

LOOK FOR SUPPORT

An Alzheimer's diagnosis is devastating, and it's natural to have some scary and sometimes overwhelming emotions. Don't try to deal with those feelings on your own. "It's very important that a person living with Alzheimer's and the soon-to-be caregiver seek supportive services," says Sunnie Kenowsky, DVM, Co-director of the Fisher Alzheimer's Disease Education and Resources Program at NYU School of Medicine and Clinical Instructor of Psychiatry at NYU Langone Medical Center.

The support can come from your doctor, a support group, online support, or a psychiatrist, psychologist or therapist who has experience with Alzheimer's. Support groups can be especially beneficial. "Alzheimer's is a very isolating experience because most people don't really understand it," Dr. Kenowsky says. "Support groups allow a person with Alzheimer's or the caregiver or other loved one to be around other people who are going through the same thing."

LEGAL AND FINANCIAL PLANNING

As soon as possible after the diagnosis, address your legal and financial future. Create or update your will and advance directive (also known as a living will) and appoint a power of attorney, someone you trust to make legal, financial or health decisions on your behalf should you be unable to do so yourself, Dr. Kenowsky suggests. If you need help, or if it's a loved one who has been diagnosed, consult an attorney who specializes in elder law.

Then, focus on finances. "Dementia care, whether in the home, a residential setting, assisted living or nursing home, is very expensive, and oftentimes, Medicare is not sufficient to provide the kind of care a person with Alzheimer's needs," says Dr. Kenowsky. So, it's important to determine how you or your family will pay for the care.

GATHER IMPORTANT INFORMATION

Compile a detailed list of important information. Include your bank accounts, income, savings, 401(k), pension, properties, insurance policies, assets and debts, and passwords for computers, cellphones, email and social media. In addition, collect documents such as your birth certificate, marriage license, divorce decree, passport, military records, tax returns, vehicle title and property deed. Place the list and documents in a secure place and tell at least one trusted person where they are located and how to access them when necessary.

SHARE YOUR WISHES

Think about what you want and don't want to happen when Alzheimer's progresses. Communicate your care preferences while you're able. "One of the most important decisions to make is who you want as a caregiver or care partner, the person who will stand by you through the stages of the illness," Dr. Kenowsky says. Some other things to consider: whether you want to live at home and have live-in care, move to a facility where staff is there to assist you at all times, or maintain some independence at a senior living facility. Do you want to participate in Alzheimer's-related clinical trials? What would you like to happen to your pet if you can no longer take care of it? Do you have any preferences for your final arrangements? Is there anyone you would like to visit you (or not) as Alzheimer's progresses?

CONTINUE HEALTHY LIVING

After the diagnosis, it's easy to feel there's no point in trying to maintain healthy habits. However, people who have a healthy lifestyle tend to live much better through the illness, Dr. Kenowsky says. Therefore, it's best to eat a nutritious and balanced diet, get adequate amounts of sleep, reduce stress and do some form of physical activity on most days of the week. In addition to helping keep your body in shape and relieve stress, Dr. Kenowsky says aerobic exercise will lead to the creation of new brain cells in the hippocampus, the area where memories are formed.

Also, continue to engage in social activities and things you love, like spending time with friends, dancing, watching movies, playing golf or whatever makes you happy. Just because you've been diagnosed with Alzheimer's does not mean your life is over. Do all you can to enjoy it for as long as possible.

The Fisher Center for Alzheimer's Research:

A HISTORY OF INNOVATION AND DISCOVERY

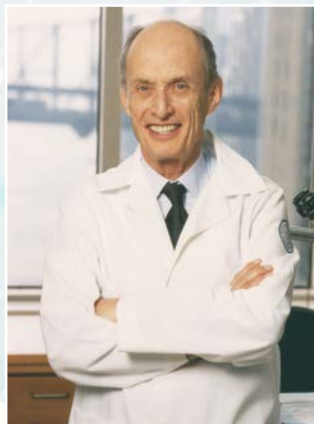
By Dr. Marc Flajolet

Alois Alzheimer made public during his now-famous 1906 lecture the presence of abundant abnormal structures in the brains of people with Alzheimer's disease, structures that are now known as amyloid plaques. For several decades the great majority of the studies carried out on Alzheimer's focused on these amyloid plaques. They were later described as being made of a degradation product called amyloid peptide or beta-amyloid, a cleavage product originating from another component, the amyloid precursor protein (APP). Nothing was known about APP, about its biological role or about beta-amyloid peptide. Was this peptide playing a role in a normal biological function? Was it part of a larger pathway? How was this very small component causing the collapse of the brain?

1906

1950s

1995



Dr. Paul Greengard

started his career in the mid-1950s. His main focus at the time was cAMP, a molecule that belongs to a class of signaling molecules called secondary messengers and that is a crucial component for neuronal communication (cell signaling). This earlier work led him to envision a novel dimension in neuroscience, something that could be summarized under the term "slow synaptic

transmission," in contrast with what was known until then as "fast synaptic transmission." This nascent field in neuroscience involved the existence of biochemical modifications (such as phosphorylation) that were generated in response to electrical signals (fast transmission). Dr. Greengard's pioneering work received the utmost attention and was recognized at the highest level by the Nobel Prize in Physiology or Medicine in 2000.

Dr. Greengard started working on topics related to Alzheimer's disease at the end of the 1970s, and his first work mentioning Alzheimer's disease was published in 1984: "Synapsin 1 in Different Brain Regions in Senile Dementia of Alzheimer Type and in Multi-Infarct Dementia."



In 1995, Zachary Fisher,

a prominent figure in the New York real estate world, established the Fisher Center for Alzheimer's Research Foundation in partnership with Dr. Greengard and David Rockefeller at The Rockefeller University.

Fisher's beloved wife, Elizabeth, was living with Alzheimer's at that time and inspired him to found a laboratory devoted to finding better treatments and even a cure for Alzheimer's disease. At that time Dr. Greengard was the uncontested brain-signaling expert and was already well versed in Alzheimer's disease. Dr. Greengard was the first director of the Center and the only one until he died on April 13, 2019. The legacy they established lives on to this day, as the Fisher Center continues to pursue these vitally important goals.

→ **Over the last 25 years**, under the direction of Dr. Greengard, the Fisher Center for Alzheimer's Research has had a number of breakthroughs, made seminal discoveries in several fields very relevant for Alzheimer's disease (including novel technological advances), and developed novel animal models, tools and reagents that are now internationally used and recognized. The research projects have greatly improved over the last 25 years. Scientists initially focused on a fundamental direction: understanding how toxic beta-amyloid (A-beta peptide or beta-amyloid peptide) was generated to lead to amyloid plaque formations. This research in the late 1990s was centered on biochemical, molecular and cellular studies.

→ **The focus has largely evolved over the years** to become less unidirectional, encompassing many more research fields, and the techniques have evolved as well. The Fisher Center became less centered on beta-amyloid and amyloid plaques, investigating other biological functions that could counteract the disease such as protein degradation, protein trafficking and receptor signaling. The Fisher Center also initiated important work on the second main hallmark of the disease, a protein called tau, as well as on various animal models and new technological approaches—for example, using light-sheet microscopy to envision brains in 3-D, or live imaging to follow rare biological events as they are happening in a living cell. Slowly, the Fisher Center has evolved from in vitro experiments to in vivo experiments, including animal studies (also called preclinical studies). Due to the complexity and inaccessibility of the brain, and the scientific translational process, any validated results in cells or other nonliving systems have to be validated on a fully functional brain before being considered for clinical studies, or studies performed on humans. More recently, the scientists working at the Fisher Center have put more attention on human samples and data, generating some cellular models derived from patient skin cultures. Furthermore, while initially the main goal of the Fisher Center Foundation was to understand what goes wrong in the brain, over the years the focus has become more therapeutically oriented, putting significantly more weight on translational research and therapeutic approaches. We are not only looking for novel therapeutic approaches but also designating, researching and developing drug-like compounds and optimizing them. Very recently, the Fisher Center has acquired more lab space to develop a novel drug discovery platform. Finally, the network of collaborators has grown enormously, ranging from biologists to neurosurgeons, human geneticists, organic chemists and others.

→ **In the context of Alzheimer's disease and amyloid**, Dr. Greengard's group began by focusing on the synthesis of beta-amyloid, the prime suspect in the etiology of Alzheimer's disease. The enzyme gamma-secretase catalyzes the formation of beta-amyloid, the substance many believed to be mostly responsible for the death of nerve cells in Alzheimer's, after aggregating into amyloid plaques. Twenty-five years ago, it was believed that the plaques were the most toxic component. But the Fisher scientists and others have shown that the beta-amyloid peptide itself is actually more toxic than the plaques. Today many believe that the plaques are actually the tombstones of past events and that they are rather innocuous in comparison with smaller aggregates of beta-amyloid peptide. The Fisher Center scientists' initial studies were carried out to understand how brain cells made this apparent toxic peptide and why gene mutations in some families could lead to Alzheimer's disease (familial Alzheimer's disease) at only age 40 compared with the typical age of onset (65) for the rest of the population (sporadic Alzheimer's disease), which strikes millions of people later in life.

20TH CENTURY

The senile plaques or amyloid plaques described on the previous page contain aggregates of beta-amyloid peptide, which derives itself from the cleavage of APP. These aggregates have been described as existing in the nerve terminals, the active zone of the nerve cells. It was not known whether the degenerating nerve terminals caused the formation of these aggregates or the aggregates caused degeneration. In a study performed at the Fisher Center on a rat brain, it was shown for the first time that neuronal degeneration affects APP processing, therefore leading to the production of the toxic beta-amyloid.

In parallel, the group demonstrated that protein phosphorylation inhibited the production of Alzheimer's beta-amyloid peptide, and that phosphorylation regulated the relative utilization of processing pathways for APP.

1996

As early as 1996, the Fisher Center published research on apolipoprotein E, or APOE, highlighting its importance in the brain. In their first study on APOE, the scientists mentioned that APOE is the most important apolipoprotein in the brain and is largely expressed by glial cells. Today it is known that APOE-E4 is one of the main risk factors associated with Alzheimer's disease. In 1996, the Fisher scientists recognized the importance of APOE in absence of powerful genetic data that became available much later.

1997

In 1997, the group published their first work on one of the two enzymes responsible for the cleavage of APP to generate beta-amyloid, the protein called presenilin-1 (PS-1) that belongs to a complex of several proteins called gamma-secretase. This initial piece of work demonstrated that PS-1 can also be affected by phosphorylation and therefore be regulated. This possibility of being regulated immediately struck Dr. Greengard as a potential to target PS-1 therapeutically.

1998

In 1998, the Fisher scientists demonstrated that estrogen reduces neuronal generation of Alzheimer's beta-amyloid peptides. This was also a breakthrough and the very first time that the Fisher Center was connecting Alzheimer's disease to hormonal regulation. (Estrogen is a steroid hormone known to be responsible for the development and maintenance of female body features.) This was particularly relevant as the scientific community had already realized that women were at higher risk of developing Alzheimer's disease than men.

1999

The next year, in 1999, the scientists of the Fisher Center made their first incursion into the world of cellular trafficking and transport. Those findings led to a more dynamic view of the problem. Until then the scientific community had a more static view of the problem, focusing its efforts on another cell region, the cell surface.

21ST CENTURY

The 2000s marked a clear acceleration in the Fisher Center's progress, compared with the previous decade. This is one of the crucial, pivotal periods for the Foundation, a period during which the Foundation expanded its field of expertise and ventured into novel scientific directions while pursuing its efforts on APP, beta-amyloid and amyloid plaques. Fisher Center scientists began venturing into the fields of tau, the second enzyme cleaving APP and releasing beta-peptide called BACE1. Fisher Center scientists also began looking at diabetes, kinase inhibitors and drug-like compounds while pursuing their effort on the roles of hormonal regulation in relation to their earlier discoveries regarding estrogen.

2000

In 2000, pursuing their effort to understand how hormones regulate APP and what impact this could have on the brain in the context of Alzheimer's disease, the Fisher researchers demonstrated that testosterone—the male hormone—reduced neuronal secretion of Alzheimer's beta-amyloid peptides.

The same year, the scientists demonstrated very clearly a correlation between elevated levels of beta-amyloid peptide in the brain and cognitive decline. This might seem obvious today, but it took a long time to demonstrate that, at least in some cases, the abundance of the toxic beta-peptide correlated with cognition decline.

2001

The early 2000s were also associated with the first projects related to signaling and phosphorylation, and involving small molecular weight compounds or drug-like compounds. The year 2001 also marked perhaps the first incursion by the Fisher Center scientists into the world of tau. Indeed, that year the Fisher team published a study describing the identification of a family of compounds called indirubins and their impact on two kinases called GSK3beta (or glycogen synthase kinase-3 beta) and CDK5/p25, two protein kinases involved in abnormal tau phosphorylation in Alzheimer's disease.

Diabetes has been associated relatively early on with Alzheimer's disease, and the Fisher Center has tackled the role of insulin on APP trafficking since the late 1990s. The Fisher Center scientists' first publication in 2001, following up on their fundamental signaling studies, demonstrated that the stimulation of APP trafficking (the way it moves within cells) by insulin reduces beta-amyloid inside the nerve cells and that this phenomenon requires a specific kinase called MAPK.

The team effort led to the first publication on the enzyme BACE1, the second culprit involved in cleaving APP to generate the toxic beta-amyloid peptide.

In 2005, an important study from Dr. Greengard's lab was published about beta-amyloid demonstrating that the toxic peptide itself, and not the amyloid plaques, was actually toxic for the neurons. This was an important breakthrough that initiated a shift in Alzheimer's research. Indeed, until then the scientific community was convinced that the amyloid plaques were the reason for the disease. With this study published in the journal *Nature Neuroscience*, the Fisher Center demonstrated that the beta-amyloid peptide, long before it self-aggregates and forms amyloid plaques, was interfering with the function of an important neuronal receptor called the NMDA receptor.

2005

2006

2007

The following year, the scientists demonstrated that the enzyme phospholipase D1 was able to correct impaired beta-APP trafficking and help with neurite outgrowth in presenilin-1 mutant neurons linked with familial Alzheimer's disease. After their work on the compounds grouped under the name indirubins, this work represents the second effort to identify therapeutic targets.

In 2007, while the team was looking for drug-like compounds that could regulate APP cleavage to generate less beta-amyloid without affecting another function of the brain (notch signaling—crucial for various biological functions, which cannot be turned off), the Fisher scientists discovered that an inhibitor of casein kinase 1 (CK1) was able to do just that. This marked the beginning of a large effort centered on CK1 function, its impact on gamma-secretase function and later the development of better drug-like compounds. This is still a very active program today.

The 2010s were definitively marked by a strong push to work more with human samples and with human data, and to further develop programs to identify novel therapeutic targets as well as druglike compounds. This started with the identification in 2010 of the protein called GSAP (gamma-secretase activating protein), which the team published as “Gamma-Secretase Activating Protein Is a Therapeutic Target for Alzheimer’s Disease.” While this protein does not represent the easiest therapeutic solution, when it was first identified, it had all the characteristics of a great target. Indeed, GSAP acts as a modulator of gamma-secretase and does not interfere with the crucial notch-signaling pathway.

2010

2013

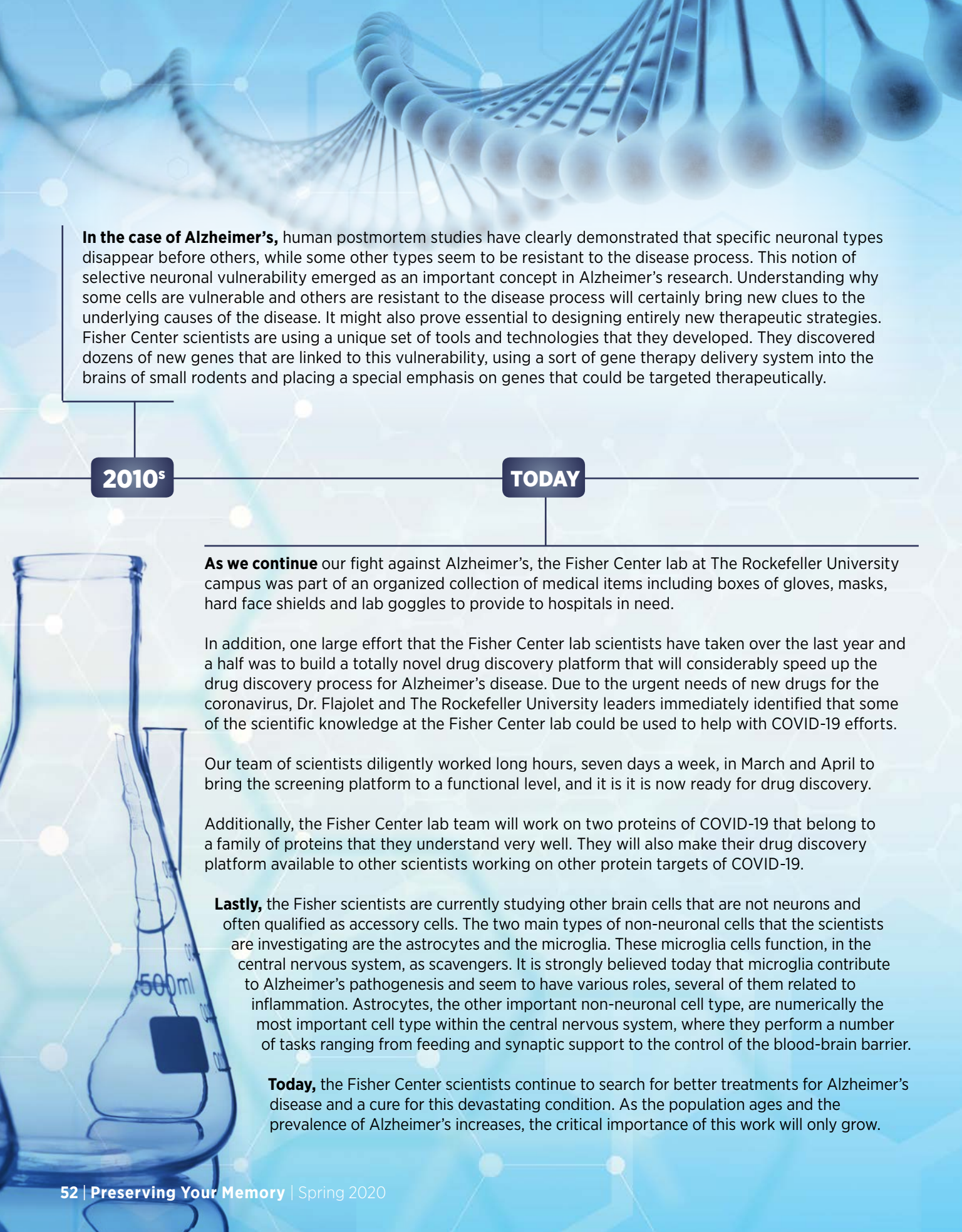
2016

2018

In 2013, Dr. Greengard’s lab made its first incursion into the world of autophagy, a biological phenomenon corresponding to a cellular system designed to remove debris from inside the cells. Indeed, researchers at the Fisher Center realized early on the importance of this system and tested the possibility that it could be effective in removing beta-amyloid from the cells, before the amyloids are released into the milieu. The idea in that case is to evaluate the possibility that occasional activation of the autophagy pathway could boost cell clearance and force the cells to remove the toxic amyloid peptide before it is released into the brain milieu.

From a more methodological point of view, the Fisher Center Foundation has been at the front line as well. In 2016, one study published by the Fisher Center group received significant attention and praise. A technique called iDISCO was developed and optimized to observe in 3-D, inside an entire brain, the hallmarks of Alzheimer’s disease.

In 2018, Fisher scientists continued their effort to further develop therapeutic approaches as well as to build a novel platform for drug discovery applications. Earlier the group had identified a cancer medicine called Gleevec as an effective agent in reducing beta-amyloid. However, one of the main limitations was the brain permeability. The next step was to try to chemically modify the Gleevec molecule and improve its brain permeability. The Fisher Center scientists continued to characterize and optimize derivatives (chemically altered forms) of Gleevec, testing the newly optimized derivatives for more potent beta-amyloid-lowering activity in the brain. Interestingly, mutations that protect people from developing Alzheimer’s disease have been described in the literature. Mechanistically, some of the Gleevec derivatives synthesized seem to mimic the effect of one such protective mutation. This recent work also suggests that medicines targeting this pathway might protect against the development of Alzheimer’s.



In the case of Alzheimer's, human postmortem studies have clearly demonstrated that specific neuronal types disappear before others, while some other types seem to be resistant to the disease process. This notion of selective neuronal vulnerability emerged as an important concept in Alzheimer's research. Understanding why some cells are vulnerable and others are resistant to the disease process will certainly bring new clues to the underlying causes of the disease. It might also prove essential to designing entirely new therapeutic strategies. Fisher Center scientists are using a unique set of tools and technologies that they developed. They discovered dozens of new genes that are linked to this vulnerability, using a sort of gene therapy delivery system into the brains of small rodents and placing a special emphasis on genes that could be targeted therapeutically.

2010^s

TODAY

As we continue our fight against Alzheimer's, the Fisher Center lab at The Rockefeller University campus was part of an organized collection of medical items including boxes of gloves, masks, hard face shields and lab goggles to provide to hospitals in need.

In addition, one large effort that the Fisher Center lab scientists have taken over the last year and a half was to build a totally novel drug discovery platform that will considerably speed up the drug discovery process for Alzheimer's disease. Due to the urgent needs of new drugs for the coronavirus, Dr. Flajolet and The Rockefeller University leaders immediately identified that some of the scientific knowledge at the Fisher Center lab could be used to help with COVID-19 efforts.

Our team of scientists diligently worked long hours, seven days a week, in March and April to bring the screening platform to a functional level, and it is now ready for drug discovery.

Additionally, the Fisher Center lab team will work on two proteins of COVID-19 that belong to a family of proteins that they understand very well. They will also make their drug discovery platform available to other scientists working on other protein targets of COVID-19.

Lastly, the Fisher scientists are currently studying other brain cells that are not neurons and often qualified as accessory cells. The two main types of non-neuronal cells that the scientists are investigating are the astrocytes and the microglia. These microglia cells function, in the central nervous system, as scavengers. It is strongly believed today that microglia contribute to Alzheimer's pathogenesis and seem to have various roles, several of them related to inflammation. Astrocytes, the other important non-neuronal cell type, are numerically the most important cell type within the central nervous system, where they perform a number of tasks ranging from feeding and synaptic support to the control of the blood-brain barrier.

Today, the Fisher Center scientists continue to search for better treatments for Alzheimer's disease and a cure for this devastating condition. As the population ages and the prevalence of Alzheimer's increases, the critical importance of this work will only grow.

3 TIPS FOR MEDICINE SAFETY

By Karen Michels

Most older adults take at least one prescription medicine, with many taking five or more. Keeping track of all these medicines can be a struggle for anyone. Alzheimer's disease adds to these challenges.

As a caregiver, how can you help ensure that medicines are taken correctly and safely? The three tips below give you a great place to start.



1 KEEP A RECORD OF ALL MEDICINES.

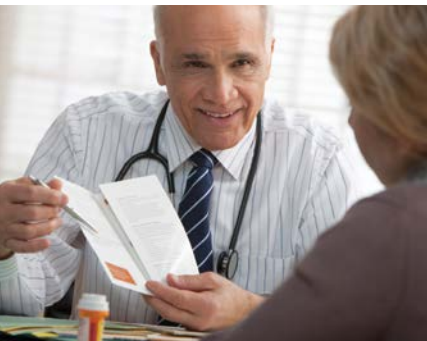
This includes prescription medicines as well as medicines, vitamins and herbs bought over the counter. For each one, write down the information below. If you don't know one of these pieces of information for something your loved one takes, ask the healthcare provider or pharmacist.

- The name of the medicine (brand name and generic)
- What the medicine is taken for
- What the medicine looks like (the color and shape)
- The dosage to take and how often to take it (how many milligrams and how many times a day)
- What time of day it is taken (morning, afternoon, evening)
- Whether it needs to be taken with food or on an empty stomach
- What to do if a dose is missed



2 USE A PILLBOX AND HAVE A ROUTINE.

A pillbox is a container that has compartments for medicines. Many are marked with days of the week and times of day. At the beginning of the week, fill the pillbox with the dosages that need to be taken. This helps you and your loved one keep track of what medicines need to be taken and when. It also shows whether or not the medicine has been taken at the specified time. Keep the pillbox where it will be seen and remembered, and set a routine for taking the pills.



3 COMMUNICATE WITH CARE PROVIDERS.

Some medicines should not be taken together. To help prevent interactions and adverse effects, make sure that every healthcare provider knows all the medicines that are being taken. Show them the medicine record you made (as described above). Also, if any part of the medicine plan isn't working for any reason, talk with a healthcare provider. Another medicine may work better. Another form of medicine (such as liquid) may be easier to take. And if a medicine is a struggle to pay for, a less expensive option may be available.

**HOMETOWN:**

La Mirada, California

EDUCATION:

Dr. Kenowsky received her bachelor's degree from the University of Vermont. She received a Doctorate in Veterinary Medicine from the University of Florida, College of Veterinary Medicine, and completed an internship at Angell Memorial Animal Hospital in Boston and a residency at the Western College of Veterinary Medicine at the University of Saskatchewan specializing in internal medicine of small animals.

FUN FACT:

Dr. Kenowsky is also a veterinarian, so she loves animals and says, "Starting my professional life as a veterinarian gave me skills that I might not have learned otherwise, skills that helped me tremendously when I decided to change fields and work with people."

Dr. Kenowsky is an avid potter, too. "I love working on ceramics. I love working on the potter's wheel, molding the clay from nothing into a beautiful object. Just the touch of your fingers, the spin of the wheel and a little water can mold that clay into a beautiful and functional object of art," she says.

Fisher Center Scientist Spotlight

Due to the outstanding work of Fisher Center's world-renowned scientists, we are getting closer to finding a cure!

Dr. Sunnie Kenowsky *Co-director of the Fisher Alzheimer's Disease Education and Resources Program at NYU School of Medicine and Clinical Instructor in the Department of Psychiatry at NYU Langone Health*

RESEARCH DISCOVERIES:

The niece of the late Zachary and Elizabeth Kenowsky Fisher, Dr. Kenowsky conducts Alzheimer's research at the Fisher Alzheimer's Disease Education and Resources Program at the NYU School of Medicine with a goal to change the standard of care for people with Alzheimer's by determining the added benefit of a comprehensive, personalized care management program for people with Alzheimer's receiving the medicine memantine.

She developed a number of caregiving strategies, including a method called memory coaching, which helps people living with Alzheimer's regain skills and abilities they are losing or have recently lost.



Dr. Kenowsky with her Uncle Zachary and Aunt Elizabeth M. Fisher



Avocado Melon Breakfast Smoothie

Ingredients

1 large, ripe avocado
1 cup honeydew melon chunks
(about 1 slice)
½ lime, juiced (1½ tsp lime
juice)
1 cup fat-free milk
1 cup fat-free plain yogurt
½ cup 100% apple juice or
white grape juice
1 tbsp honey

Directions

1. Cut avocado in half and remove pit.
2. Scoop out flesh and place in blender.
3. Add remaining ingredients; blend well.
4. Serve cold. (Keeps well in refrigerator for up to 24 hours. If made ahead, stir gently before pouring into glasses.)

Serves 2. Each serving provides: 343 calories, 11 g total fat (1.5 g saturated fat, 0 g trans fat), 6 mg cholesterol, 133 mg sodium, 57 g total carbohydrate, 5 g dietary fiber, 35 g sugars, 10 g protein.

Source: United States
Department of Agriculture



Vegetarian Stuffed Peppers

Ingredients

4 red or green bell peppers
2 cups (1 pint) cherry tomatoes
1 medium onion
1 cup fresh basil leaves
3 garlic cloves
2 tsp olive oil
¼ tsp salt
¼ tsp pepper

Directions

1. Preheat oven to 425°F. Lightly oil a large, shallow baking pan.
2. Cut peppers in half lengthwise and remove seeds. Arrange peppers cut sides up in baking pan and lightly oil cut edges of stems.
3. Halve cherry tomatoes and chop onion and basil. Finely chop garlic.
4. In a bowl, toss tomatoes, onion, basil, garlic, olive oil, salt and pepper to taste.
5. Spoon equal portions of mixture into peppers and roast in upper third of oven until peppers are tender, about 20 minutes.

Serves 8. Each serving provides:
35 calories, 1.5 g total fat
(0 g saturated fat, 0 g trans fat),
0 mg cholesterol, 80 mg sodium,
6 g total carbohydrate, 2 g dietary
fiber, 3 g sugars, 1 g protein.

Brain-Boosting Puzzles

“Use it or lose it.” The message is simple. If you don’t use your muscles, they will no longer be as effective as they should be. Of course, the brain is not a muscle; however, it has recently come to light that “mental workouts,” such as solving crosswords and other puzzles, can help ward off Alzheimer’s. In these pages, we offer a variety of different types of puzzles that will work out your various skills involving memory, deduction, and letter manipulation, and, we hope, also provide you with a ton of fun!

(ANSWERS ON PAGE 59)

MATCH THESE

Can you identify these colorful expressions by matching them to their literal meanings?

- | | |
|-----------------------------|---------------------|
| 1. _____ Green-eyed monster | a. Cowardly |
| 2. _____ Brown study | b. Exhausted |
| 3. _____ White lightning | c. Mark of shame |
| 4. _____ Born to the purple | d. Healthy |
| 5. _____ Gray matter | e. Baked dessert |
| 6. _____ Yellow-bellied | f. Card game |
| 7. _____ Red dog | g. Low spirits |
| 8. _____ Scarlet letter | h. Royal |
| 9. _____ Blue devils | i. Brains |
| 10. _____ Brown betty | j. Deep thought |
| 11. _____ Blue in the face | k. Jealousy |
| 12. _____ In the pink | l. Moonshine liquor |

DROPLINE

Take the letters in the top half of each column below and distribute them in the blanks of the bottom half so that the letters spell out a wise piece of advice. The black squares are the spaces between words. One letter has been dropped in place to start you off.

T	T	S	S	I	T	Y	Y	C	T	S	H	A	R	T	S	N
O	R	I	U	R	F	I	N	P	U	L	S	E	S	E	I	T
C	Y	U	N	S		I	O	U	R		I	N	V	U		N
		O	T			M	O	U			T	S				
T																

LEAPFROG

Here’s a list of magazine titles — one two-word title for each number. Their letters are in the correct order, but they overlap. All you have to do to find the titles is separate the letters.

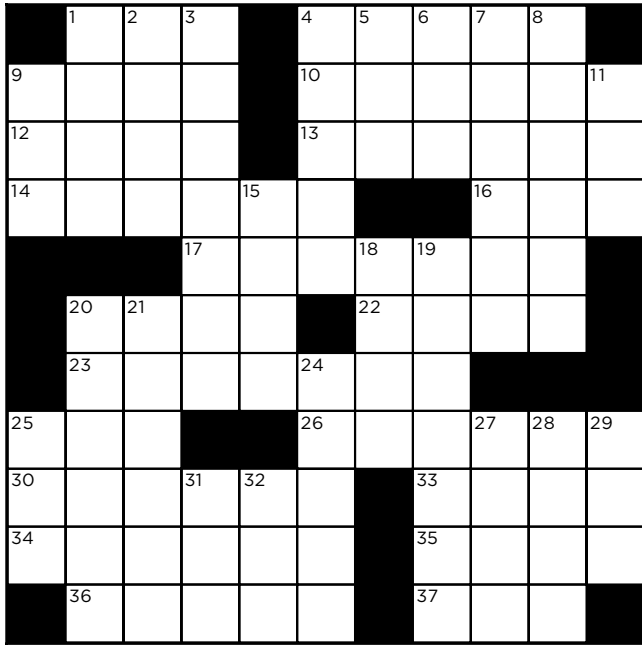
Example: **FACIMRCILELY** — FAMILY CIRCLE

- | | |
|--|-------|
| 1. M T R O E T N O R D | _____ |
| 2. A B P P O E T N I T | _____ |
| 3. H O U G S O E K E O E P I D N G | _____ |
| 4. S T R O L O L N I N G E | _____ |
| 5. B U W E S I E N E S K S | _____ |
| 6. I S P L O L U S R T R T A S T E D | _____ |
| 7. R E D I A G D E S E R T S | _____ |
| 8. S L O U I T H V I E R N G N | _____ |
| 9. W E N T E E R E K T A I L N M Y E N T | _____ |
| 10. M E P O C H P U A L N A I R C S | _____ |



BRAIN-BOOSTING CROSSWORDS

We have provided two crosswords here to sharpen your puzzle skills. Start with the one on the left, which is the easier puzzle. In this one we have provided solving aids, such as the number of words in multi-word entries. The puzzle on the right is a medium level puzzle and those solving aids are not provided. Have fun testing your knowledge while doing something that's good for you!



ACROSS

1. Utah-based church (abbr.)
4. Satisfies
9. "Just ____" (2 wds.)
10. Villa
12. Cake froster
13. Laid-back
14. Early Ford car (2 wds.)
16. "____ the season to be jolly..."
17. Magi (2 wds.)
20. Poor grades
22. Earth's neighbor
23. "Give Me That ____ Religion" (2 wds.)
25. Unit of weight
26. Richard Petty's org.
30. Inventor Thomas Alva ____
33. Television, informally
34. Dog
35. Critic Rex
36. Adoring one
37. Outlandish

DOWN

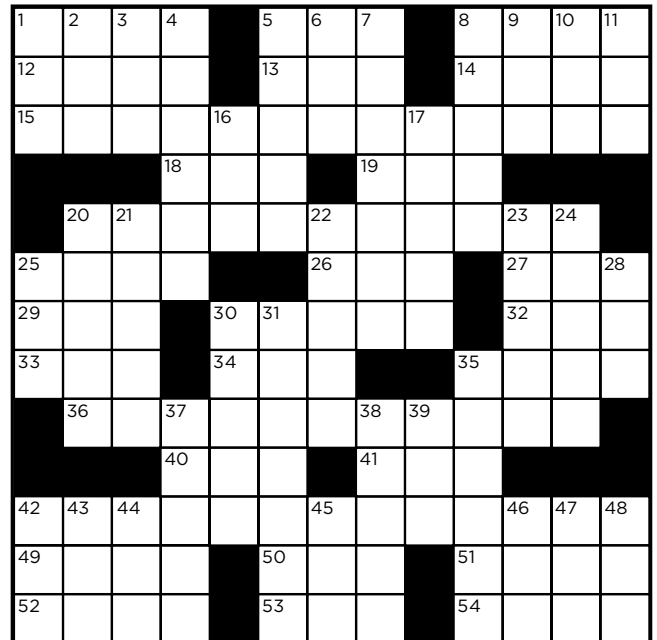
1. Poison weed
2. Fizzled out
3. Scattered about
4. Religious groups
5. "Born in the ____"
6. That thing's
7. More tense
8. Laundry day woes
9. Poorly lit
11. Overhead trains
15. Shopper's item
18. "Friends" baby
19. Orchestra conductor
20. Thingamabob
21. Ecuadoran current (2 wds.)
24. ____ beauty
25. Detective, informally
27. Prompted
28. Asleep
29. Tomato color
31. Hold session
32. Billfold item

ACROSS

1. Brainstorm
5. Negative prefix
8. Resting on
12. After-bath sprinkle
13. Like Motrin, as a medicine: abbr.
14. "Dumb" girl of '20s funnies
15. Goes for broke
18. Beluga product
19. Be obligated to Visa
20. Niagra Falls visitor, often
25. Frau's abode
26. B.P.O.E. member
27. Haul
29. Sculpture, e.g.
30. Pentagon bigwigs
32. Lili's life
33. Spearheaded
34. Above, poetically
35. Gallo product
36. Apollo mission objective
40. Weapon in an action film
41. Skiff accessory
42. 1935 song
49. Heroic
50. Common tree
51. Revise
52. Proofreader's word
53. Orthodontist's deg.
54. Kyle of football

DOWN

1. "____ Raining Men"
2. "Zip-A-Dee- Doo- ____"
3. '70s rock gp.
4. Snacks for Piglet
5. Saunter
6. "Addams Family" cousin
7. Academies
8. Madison Ave. execs
9. ____ hot to handle
10. Gold, to a conquistador
11. Flash locale
16. Boot part
17. "Return of the Jedi" creatures
20. Sheik's group
21. Surpass
22. Ben Stiller's mom
23. Hayes of the Bullets
24. Regretting
25. "Shallow ____"
28. Letter before aitch
30. "____ Goes to College"
31. Experienced again
35. More sinewy
37. Prevention measure
38. Standards
39. Beaver-built barrier
42. Part of DVM: abbr.
43. Unlock, to a poet
44. Mazola product
45. Days of yore, in days of yore
46. Shakespearean fuss
47. Harvard's neighbor: abbr.
48. Inhabitant: suffix



BRAIN-BOOSTING PUZZLES

HIDDEN-MESSAGE WORD-FIND

After you have located and circled in the diagram all of the words in the Word List below, read the leftover (unused) letters from left to right, line by line, to reveal an appropriate message written by advertising executive William Bernbach. The words are found in the diagram reading forward, backward, up, down, and diagonally, and always in a straight line.

- | | |
|------------------|----------------|
| BILLBOARD | PACKAGING |
| CLASSIFIED | PLACEMENT |
| COMMERCIAL | POSTER |
| COPY | PREMIUM |
| DIRECT MAIL | PROMOTION |
| DISPLAY | PROPAGANDA |
| ENDORSEMENT | PUBLICITY |
| FULL-PAGE SPREAD | SANDWICH BOARD |
| HANDBILL | SIGN |
| IMAGE | SKYWRITING |
| LOGO | SPONSORSHIP |
| MARQUEE | |

```

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

SUDOKU

To complete the puzzle below, fill in the squares so that each digit 1 through 9 appears exactly once in each row, in each column, and in each enclosed nine-unit block.

		5					3	
				5	6		9	
		9			7		6	8
2			3			4		7
				1				
4		7			5			3
3	8		5			1		
	2		1	7				
	9					3		



•VISIT US AT KAPPAPUZZLES.COM•

PUZZLES ANSWERS

Match These

1k, 2j, 3l, 4h, 5i, 6a, 7f, 8c, 9g, 10e, 11b, 12d.

Dropline

Trust your instincts. If you have no instincts, trust your impulses.

(Noel Coward)

Leapfrog

- Motor Trend;
- Bon Appetit;
- Good Housekeeping;
- Rolling Stone;
- Business Week;
- Sports Illustrated;
- Reader's Digest;
- Southern Living;
- Entertainment Weekly;
- Popular Mechanics.

Hidden Message

Today's smartest advertising style is tomorrow's corn.

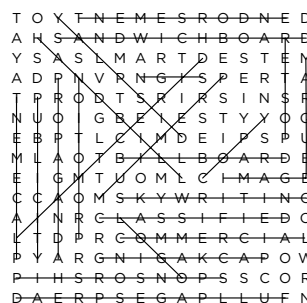
Crossword 1



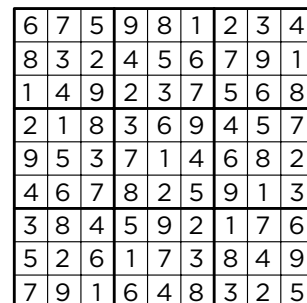
Crossword 2



Word-Find



Sudoku



Now here is how you can do your part to support the cause to find a cure! Subscribe to one of these magazines, and a percentage of the proceeds will go to the Fisher Center for Alzheimer's Research Foundation.

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A8CCR

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Fisher Center for Alzheimer's
Research Foundation
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TREASURE THE MEMORY

When someone you love becomes
a memory, the memory
becomes a treasure

Losing someone you love is devastating,
however long or well-lived their life was.
During this extremely difficult time, the Fisher
Center offers you an opportunity to commemorate
your loved one through our online Memory Wall.
May your loved one's legacy live on.

To have an online page honoring
your loved one created,
visit alzinfo.org/memory-wall

