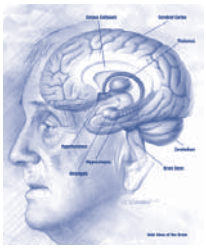
Volume 15, Number 3 Alzheimer's Disease Education and Referral Center 2007

CONNECTIONS



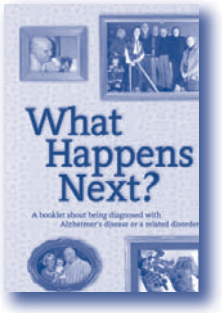
Findings from Memory Research Continue to Fascinate

Part 1 of 2

Your own name. What you were doing when you heard that President Kennedy had been shot or that we had landed on the moon. How to play the piano. The birth of your first child. Some things are indelibly imprinted in your mind. You can instantly recall every detail or carry out the action without effort. Other memories are fuzzier: What you had for dinner last Tuesday. Foreign language verbs you learned long ago. Reconstructing the steps for programming your cell phone that your son just taught you. Why do some things stick in our brains like glue, while others drift away, and yet others are lodged there partially or imperfectly?

This issue of *Connections* presents the first installment of a two-part series about memory. This article will examine the current understanding of memory and how the brain stores and retrieves information. Part two will look at normal

(see Memory, page 6)



Booklet by and for People with Early-Stage AD Now Available

In a new booklet now available from the Alzheimer's Disease Education and Referral (ADEAR) Center, members of a support group at the Northwestern University Alzheimer's Disease Center are sharing their thoughts and feelings about dealing with the beginning stages of dementia. Participants share their reactions to the diagnosis along with information about ways to cope, what to expect, how to tell family and friends, and other experiences in *What Happens Next? A booklet about being diagnosed with Alzheimer's disease or a related disorder.* You can order the booklet online at *www.alzheimers.nia.nih.gov*, call the ADEAR Center at 1-800-438-4380, or use the order form on the back of this newsletter.

The National Cell Repository for Alzheimer's Disease:

A Genetic Researcher's 'Savings and Loan'

You might think of the National Cell Repository for Alzheimer's Disease (NCRAD) as a savings and loan association for Alzheimer's disease (AD) researchers. Its assets are human cell lines and DNA samples, plus a database containing family histories, demographics, and participants' medical information. NCRAD "lends" its assets to researchers, who "repay" the loan by adding to the growing body of knowledge about AD.

(see NCRAD, page 2)

NCRAD administrative staff are, from left, Teresa Evans, Kate Kreiner, Kelley Faber, and Dr. Tatiana Foroud.

News From the Alzheimer's Disease Education and Referral (ADEAR) Center, A Service of the National Institute on Aging, National Institutes of Health, U.S. Department of Health and Human Services

Kate Kreiner logs in arriving samples.

NCRAD (from page 1)

Funded by the National Institute on Aging (NIA), NCRAD is staffed and managed by the Indiana University School of Medicine in Indianapolis.

When asked to describe a typical day at NCRAD, Tatiana Foroud, Ph.D., Director, says "There really is no such thing for us. In fact, some days may seem a little frantic!" Dr. Foroud should know. She is the lead investigator at NCRAD and became director in 2004. She gives the following example to illustrate how flexibility is needed during any given day:

"When a staff member learns that a study participant who agreed to donate his or her brain to NCRAD has died, we have to shift gears completely. Brain tissue is very fragile and highly valued for research. Our ready response team must move quickly to help the family arrange an autopsy, wherever the donor might be; find someone qualified to remove the brain; get the organ to a neuropathologist for analysis; and arrange shipment to NCRAD, all before significant deterioration occurs. Analysis of this tissue is the only way to confirm or disprove a diagnosis of AD. Chances for success are greatly enhanced when the donor or family has pre-planned the autopsy and the details are in place at NCRAD."

On a "Normal" Day

During more routine days, NCRAD receives and processes blood samples from as many as 15 different sources. They arrive in tubes from participating Alzheimer's Disease Centers (ADCs) and other approved sites across the country. Samples also may be hand-delivered by staff members returning from site visits. The study coordinator assigns each one an ID number and removes other identification. Only descriptive information, such as gender and year of birth, accompanies each sample from there.

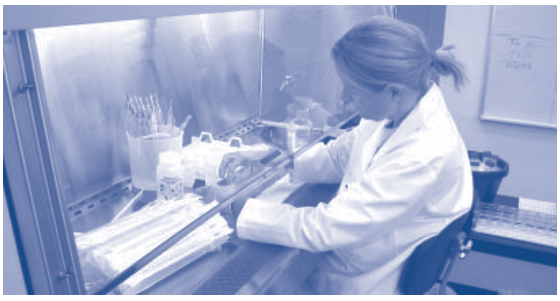
Data collection

A variety of information is obtained about each person who provides a blood sample. Some NCRAD collections include corresponding family history and medical information for each sample, while others contain only demographic and diagnostic information. The different collections housed at NCRAD are distinct based on data collected, family history, age of onset, and diagnostic requirements. Samples are cataloged by a variety of criteria, such as age of onset and certainty of diagnosis.

In addition to samples from a specific population type, a researcher may want samples from subjects without signs of dementia, who have no closely related family members with AD. Comparing the DNA of these "controls" to that of people with AD helps researchers understand which parts of the DNA (or genes) contribute to or reduce the risk of AD.

Information is often updated, so that researchers can compare a participant's initial diagnosis with any new information and finally with autopsied brain tissue. This information also helps to ensure that researchers receive the kinds of samples they need for a particular study, based on their study criteria, which may include diagnostic status (e.g., confirmed AD, probable AD, possible AD, or another type of dementia), race, ethnicity, and/or age of disease onset. Staff members enter this vital information into a secure database, where only ID numbers identify donors. Strict donor confidentiality and anonymity are maintained.

Scientists frequently ask for samples from specific "types" of populations or for frozen DNA or cell lines containing living, growing DNA. A researcher requests cell line samples to obtain an unlimited



Katharina Sullen prepares cells for cryogenic freezing.

*NCRAD by the numbers**

*All numbers are approximate totals compiled since 1990.

28,000

Number of biological samples NCRAD has sent to AD researchers

7,000

Number of participants who have provided blood samples

source of DNA or to perform analyses requiring intact cells. A researcher may request frozen DNA samples when an unlimited supply of DNA isn't needed. New technologies allow scientists to examine a single position of interest on a DNA strand or thousands of positions.

Mike Menke extracts DNA from blood samples.

Lab work

Next, the sample goes to the lab, where the coordinator applies a unique barcode to the tube. The ID number and barcode help track the samples at various stages of processing while maintaining donor privacy and anonymity throughout the process.

Blood samples are spun down into three layers—red blood cells, plasma, and white blood cells. The white blood cells are extracted to produce cell lines and DNA, which carries genes that determine inherited characteristics, such as the risk of AD.

Production of cell lines

To produce cell lines, a lab technician places the white blood cells from the donated sample into a flask with a solution that promotes cell division. The new solution is incubated at human body temperature (37°C) for several weeks and then transferred to two larger flasks. Cell division continues until desired quantities of cells are achieved.

Then the cells are put into "cryo-vials" (about 10 million cells per vial), with a "cryo-preservative." These vials are cooled in a controlled-rate freezer. Slow cooling prevents cell damage. Finally, the frozen vials are stored in a tank filled with liquid nitrogen, which takes them down to -193.3°C.

This process provides a stock of cells for future use. These cells can be thawed at any time and cell division will resume. In this way, more cells can be grown to replenish a cell line.

Production of DNA samples

Some white blood cells are washed and spun at high speed, causing them to form a pellet. The cell pellet is placed in solution with an enzyme that breaks down the cells but leaves DNA intact. After processing, the DNA sample is stored at -80°C.

Participant contact

Each year, NCRAD re-contacts donors participating in the original NCRAD collection to update information such as family deaths, along with cause of death, and information about onset of AD, another type of dementia, or memory loss. Kate Kreiner, a NCRAD Clinical Research Specialist, works closely with these families. She conducts cognitive assessments of participants by administering a 30-minute questionnaire via telephone. She explains: "The battery of tests is a way to quantify performance over time, but not to find out if you have

Cells are grown in an incubator.

Information for researchers

The NCRAD Cell Bank Advisory Committee must approve requests for samples. Typically, approved research focuses on aging, diseases associated with aging, or the etiology, pathogenesis, diagnosis, treatment, or prevention of AD. Research proposals must outline:

- Intended use of the samples
- Description of the research project
- Type and number of samples requested
- Name of the Principal Investigator and others who will use the samples
- Any grant or contract supporting the work

Applicants must agree to protect the privacy of donors and share the results of genetic analyses.

900

Number of families participating in the NCRAD collection

800

Number of families participating in the LOAD (ADGS) collection

560

Number of NCRAD participants who have had a brain autopsy

Aaron Baker, Lab Manager, readies DNA samples for storage.

AD. In families, it's important also to know who isn't having memory problems or getting the disease."

Delivery of specimens

A researcher who is interested in obtaining samples from one of the collections housed at NCRAD works closely with one of the NCRAD study coordinators. Requests are reviewed by NCRAD's Cell Bank Advisory Committee. Upon approval, a NCRAD coordinator sends the request to the laboratory, where a technician retrieves, thaws, and prepares samples for shipment. DNA can withstand some delay in delivery, but cell lines must arrive promptly to remain viable.

An unsurpassed resource

NCRAD's collections are unique because:

- While other cell repositories focus on samples from separate, unrelated individuals, NCRAD collects and stores samples and information from families, including both members diagnosed with AD and others diagnosed as AD-negative. According to Dr. Foroud, "Having specimens from families with established patterns of AD improves researchers' chances of finding genes with specific mutations in common."

- While many cell repositories don't follow up with donors, NCRAD updates its donor information annually.

- The number of samples a researcher can request is, in theory, limited only to the amount of sample material available (larger requests may be evaluated more closely before approval). This ready availability of samples is an advantage for researchers conducting studies that require many samples from one source, along with uniform background data.

- NCRAD coordinators work closely with researchers requesting samples to ensure they get precisely what they need to meet their unique research requirements.

Proven value

To date, researchers around the world who use NCRAD resources have published more than 120 scientific papers. Among them is the discovery in the 1990s of an allele of the ApoE gene—ApoE4, the first gene to be linked with increased risk of late-onset AD (LOAD).

Researchers are using NCRAD resources to track down other genetic factors in AD. Many people with the ApoE4 allele don't get AD, suggesting that other genes, as well as environmental and lifestyle factors, may increase or protect against the risk of AD, but these factors remain to be discovered. NCRAD samples also were used to understand the role of PS1, PS2, and APP genes as the genetic causes of familial AD (AD diagnosed before age 65).

"NCRAD is a unique and critically important resource for advancing our understanding of the mechanisms and causes of AD. As researchers continue to uncover more promising information about genetic factors associated with increased risk of AD, we'll be able to refine our efforts toward possible future treatment and prevention therapies," says

Frozen cell vials are placed in a cryogenic storage system.

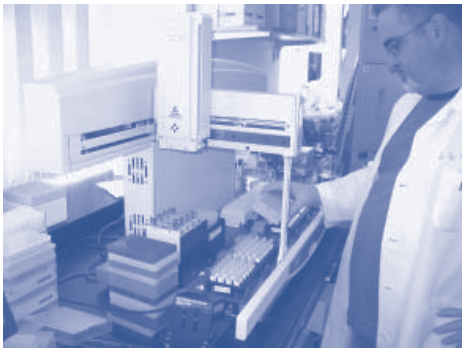
NCRAD by the numbers

430

Number of participants who provided samples and had an autopsy

380

Number of participants with a sample with confirmed AD via autopsy



Outgoing DNA samples are prepared using a robotic system.

Marcelle Morrison-Bogorad, Ph.D., Director, Neuroscience and Neuropsychology of Aging Program, NIA.

What NCRAD doesn't do

NCRAD doesn't use blood samples to test for AD, but only to obtain cell lines and DNA for research. Because of this research focus, NCRAD doesn't provide certain services, such as genetic counseling to donors. According to Teresa Evans, a NCRAD Clinical Research Specialist: "NCRAD will refer families inquiring about this service to genetic counselors who have a background in psychology and expertise in discussing genetic test results with clients. Our work is usually done over the phone, but families who feel that they need counseling should receive these services from these experts, face-to-face."

Contributing to NCRAD

NCRAD can meet growing demand for biological research samples only with the help of volunteer families who meet inclusion criteria.

According to Richard Mayeux, M.D., Principal Investigator for the NIA-funded Alzheimer's Disease Genetics Study, "These samples are tremendous assets for researchers who need large datasets for genetic analysis. Because the samples are so well-characterized, they provide a valuable bank for scientists searching for risk factor genes. We'll be able to draw upon these reserves for a long time."

Participation in NCRAD is totally voluntary. Criteria for participation in the two large NCRAD collections include:

Original NCRAD collection:

- Families with at least two living, blood-related relatives with symptoms of early-onset (familial) AD, late-onset AD (LOAD), or dementia.

LOAD collection (Alzheimer's Disease Genetics Study-ADGS):

- At least three people in a family must meet these requirements:
  - * The "proband"—a person with AD—must have disease onset after age 60 and agree to be seen, evaluated, and diagnosed at an NIA-funded ADC or other approved institution.
  - * A second family member must have disease onset after age 60 and be a sibling of the proband.
  - * A third family member must be related to the proband and either unaffected by AD and at least 60 years of age, or diagnosed with AD after age 50.

Once enrolled, families or individuals can discontinue their participation at any time. Volunteers receive no payment for their participation, but know that their generosity may contribute to a cure. There is no cost for participants. All information remains confidential.

As whole genome association studies evolve, the expanded NCRAD collection will play an important role.

To learn more about NCRAD, call 1-800-526-2839 toll free, e-mail alzstudy@iupui.edu, or send contact information to:

National Cell Repository for Alzheimer's Disease (NCRAD)
Indiana University School of Medicine
Department of Medical and Molecular Genetics
410 West 10th Street, HS 4000
Indianapolis, IN 46202-3002

Update: the Alzheimer's Disease Genetic Study (ADGS)

Since 2002, the NIA has funded the ADGS, a nationwide effort to collect genetic material from families affected by late-onset Alzheimer's disease and to make it available to researchers. The goal of ADGS planners is to recruit 1,000 families that meet the criteria for the study. These families are being recruited by selected ADCs across the country. Recruitment began in 2003. So far, more than 1,000 families have inquired, almost 900 are eligible for the study, and more than 800 have donated samples. The enrollment phase of the study is expected to be completed in 2008. Analysis of these genetic samples will continue for years to come.

120	*75*	*50*
Number of scientific papers published using NCRAD samples	Number of leading researchers using NCRAD samples.	States where participants live, plus Puerto Rico (and 7 countries)

MEMORY (from page 1)

age-related changes in memory and current theories about what happens to memory in neurodegenerative diseases such as Alzheimer's disease.

Of all human capacities, few spark our interest and inspire speculation more than memory. This ability to acquire, store, and use myriad types of information in countless ways is basic to our identity and allows us to function meaningfully in the world. More than just a stagnant repository of facts and miscellaneous knowledge, memory is a highly interactive and dynamic collection of processes that reflect and inform who we are as unique individuals.

The importance of memory becomes clearest when it is gone. The capacity to learn and remember—among the many characteristics that make us human—is eroded and ultimately destroyed when memory-robbing diseases such as Alzheimer's disease and other dementias strike.

How does the brain learn and transform experiences and sensory input into memories? Are there different types of memory? How do injury and disease impair memory? Since the beginnings of modern neuroscience in the 19th century, scientists in disciplines ranging from molecular biology to psychology have explored these questions, and the advent of new technologies has enhanced their ability to piece together the cellular, molecular, and behavioral components of this remarkable ability.

Types of memory

Most experts agree that at least several distinct memory systems exist—sensory, short-term, working, and long-term—and that these systems interact continuously to give rise to the phenomenon of memory as we experience it in our everyday lives.

Sensory memory

As we move through the world, we encounter hundreds and thousands of sensations. These are perceived through sight, sound, smell, taste, and touch. Each of these senses is associated with a type of memory that allows us briefly to retain impressions of specific experiences after the specific sensory stimuli have ceased. Although these perceptions flow into our sensory memory automatically, they decay within seconds if we do not consciously attend to them. Sensory memory, then, acts like a buffer that temporarily stores our sensory experiences and rapidly jettisons all but those to which we specifically direct our attention.

Of all human capacities, few spark our interest and inspire speculation more than memory.

Short-term memory

Experts believe that the stimuli that receive sufficient conscious attention pass selectively into short-term memory, a temporary holding tank for information. As anyone who has tried to remember a new phone number long enough to dial it knows, the storage capacity of this system is very limited, and the retention of information in short-term memory is easily disrupted by interference.

Working memory

Another distinct way in which the brain temporarily holds information is through working memory. This type of memory is used to hold information for a short time while the brain manipulates and processes it. For example, working memory is used in processes that require reasoning, such as retaining the meaning of several sentences to understand an entire paragraph, or performing and retaining all of the steps of a mental calculation to arrive at a final answer.

Long-term memory

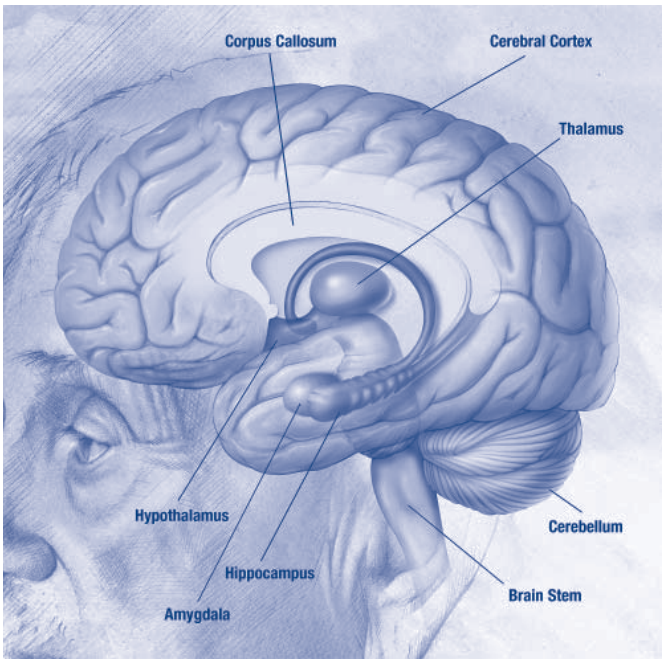
Long-term memories, which experts say are those that endure for more than 30 seconds, are classified as either declarative or procedural, according to the type of information and learning processes involved.

Declarative memory involves facts and events learned through conscious recall. Declarative memory is further subdivided into semantic and episodic memory, once again according to the type of information involved. Semantic memories are independent of context, such as time, place, or circumstances. They consist of our abstract knowledge of the world, such as the meanings of words; the size, shape, and color of objects; our implicit understanding of social customs; or our knowledge of our own time and place. Because we are repeatedly exposed to such information throughout our lives, semantic memories are rapidly and effortlessly recalled. Episodic memories, in contrast, are highly contextual memories of the events that have occurred in our own lives and include the time and place of these events as well as their sensory and emotional associations.

Procedural memory involves "how to" knowledge, such as the specific patterns of hand and finger movements required to play the piano or the muscle actions necessary to

ride a bicycle. Procedural memories are acquired through repetition rather than active recall and can be used without conscious effort.

Types of memory also can be distinguished according to their temporal direction, that is, whether they are recollections of past learning or events (retrospective memory) or involve content to be remembered for the future (prospective memory), such as remembering your dentist appointment next Thursday morning. Retrospective memory includes both episodic and semantic memory.



Areas of the brain involved in memory

Scientists believe that no one area of the brain is solely responsible for forming and storing memories. A number of areas are involved, each with varied responsibilities for perceiving, processing, and analyzing information as well as for storing it as different types of memory.

The hippocampus and associated medial temporal lobe structures are involved in the formation of memories. These regions are connected to the cerebral cortex, the extensive layers of neurons and supporting brain cells that form the outermost part of the brain. The cortex is involved in the regulation of many functions, including those involved in memory, attention, planning, and decision making. Declarative memories formed when a person is awake are initially stored in the hippocampus. These memories, which are somewhat fragile and vulnerable to disruption, are eventually stored as durable long-term memories throughout the cortex in a process called consolidation. If sleep is disrupted during this consolidation process, memory storage may be impaired.

The cerebellum—the region of the brain that regulates balance and coordination—also is in charge of forming and storing procedural memories involving motor activities, such as how to swim or tap dance. The amygdala, an almond-shaped structure next to the hippocampus, is involved in the emotional aspects of memory formation and storage. Was an event associated with pleasure, pain, or fear? The strength of these emotional associations helps determine whether and how strongly an event is retained in memory.

How are memories made and stored?

For a long time, most neuroscientists thought that the adult brain could not generate new neurons. It was thought that memories were created and stored through modifications to existing brain structures rather than through the addition of new cells. Researchers could only speculate what these modifications might be, where exactly in the brain they might occur, or how they might come about.

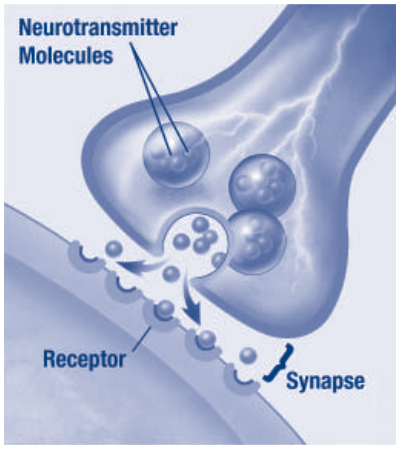
The explosion of new tools and techniques in the mid-1900s revolutionized understanding of the anatomy and physiology of the brain and the ways that neurons communicate with each other. These findings have allowed scientists to gain an increasingly sophisticated understanding of how memories are formed and stored.

Neurons: the great communicators

Neurons communicate with each other by means of slender extensions called dendrites and axons that project from the body of the cell. Incoming signals received by the dendrites are conveyed to the cell body and are sent along the axon to the dendrites of other neurons. The axon of one neuron does not actually contact the dendrites of the next cell in the network. Instead, these structures are separated by a microscopic gap called a synapse. Signals move across this gap by chemical messengers called neurotransmitters. Neurotransmitter molecules move across the synaptic space and bind with specialized receptors clustered at sites along the receiving end of dendrites.

How the neuronal conversation starts

When neurotransmitters activate a dendrite's receptors, they open channels through the cell membrane into the receiving neuron's interior. These channels allow electrically charged particles called ions to flow into or out of the cell. This flow of ions changes the



balance of electrical charges inside and outside the cell and determines what the receiving nerve cell will do. The change in electrical charge may cause the nerve cell to "fire," sending an electrical signal down the axon that releases neurotransmitters into the synapse, or may cause it to become less active. Sometimes, the neurotransmitter released at the synapse is "inhibitory," making it less likely that the receiving neuron will fire and send a signal down its axon and on to other neurons. At other times, the released neurotransmitter is "excitatory," making it more likely that a signal will be sent down the axon of the receiving neuron to other neurons in the network. Any one synaptic firing isn't sufficient to cause a neuron to send an electrical or chemical signal to the next neuron, however. Neurons continuously receive a combination of excitatory and inhibitory signals from perhaps thousands of synaptic connections, and the sum of all these inputs causes the cell to send or not send a signal to the next neuron.

From neuronal conversations to memories

In 1949, Donald Hebb, a Canadian psychologist, using previous work from a Spanish neuroscientist named Ramón y Cajal, suggested, for the very first time, a cellular mechanism for the formation of memories. Cajal had hypothesized that learning and memory rely on the strengthening of communications between neurons, and Hebb proposed that simultaneous activity among neurons that are connected in a network would selectively strengthen their synaptic connections. Connections between neurons that were not active at the same time would be weakened or left unchanged.

In 1973, neuroscientists Terje Lomo and Timothy Bliss reported a discovery of precisely the type of increase in synaptic strength proposed by Hebb nearly 25 years earlier. They found that administering a brief, high-frequency electrical stimulus to excitatory nerve pathways in the hippocampus of rabbits produced a long-lasting enhancement in the response of the receiving neuron to subsequent stimuli. As news of the discovery of this effect, dubbed long-term potentiation (LTP), spread through the neuroscience community, its implications were immediately apparent: This might be the cellular mechanism suggested by Hebb by which information is represented and stored in the brain.

Over the past 30 years, LTP has been the focus of intense research and is now the best-studied and best-known form of "synaptic plasticity," the term neuroscientists use to refer to the inherent capacity of the synapse to alter its behavior in response to neural activity. LTP has been found in several regions of the brain outside the hippocampus and is widely assumed to be the physiological basis of at least some forms of learning and memory.

Another important contribution of this work is that scientists have been able to decipher how short- and long-term memories are formed. Short-term memory involves a temporary strengthening of connections between existing synapses, allowing the synapse to be sensitized to later signals. However, when an event is significant enough (such as the birth of a child) or repeated enough times (such as learning how to type or memorizing your spouse's work telephone number), something else happens to transform the short-term memory into a long-term memory. Synapses in the brain fire sufficiently to send an especially loud and clear message to neurons that the event must be recorded. This message sets off a biochemical process within the cells that causes specific genes to initiate the production of synapse-strengthening proteins. These proteins find the synapses that are holding that event as a short-term memory and permanently strengthen their connections. From then on, it doesn't take much brain power to recall the event.

What happens when memory fails?

All of us have experienced lapses of memory when we couldn't remember where we left the car or drew a blank when trying to put a name to a face. Sometimes, though, those temporary memory lapses become permanent memory losses. What happens in the brain to cause permanent changes to memory? How do neurodegenerative diseases like AD or frontotemporal dementia affect the brain in such a way as to destroy memory? The next article in this series will examine these questions and report on new research that is pushing the boundaries of knowledge about this most fascinating of human characteristics.

AD Library Highlights

These highlights describe materials recently added to the Alzheimer's Disease Library Health Information Database (AD Lib). The items selected represent topics and formats of general interest to readers of *Connections* and ADEAR Center users or their clients. Please order directly from the source listed for each item. Journal articles are available in many university and medical school libraries. Ad Lib is accessible on the Internet at *www.nia.nih.gov/Alzheimers/Resources/SearchHealthLiterature/*.

Memory Research from Johns Hopkins

Memory White Paper, 2007

Rabins, P.V.

Available from Medletter Associates, LLC, 6 Trowbridge Drive, Bethel, CT 08601. Phone: 1-800-829-0422. Website: www.rebus.com. PRICE: $19.95 soft cover or electronic (downloadable at www.johnshopkinshealthalerts.com).

Each year, Johns Hopkins Medicine publishes a new white paper on memory, reporting the most exciting advances and useful new information about memory-related problems. This paper provides an overview of what scientists know about AD, age-associated memory loss, mild cognitive impairment (MCI), and reversible and irreversible dementias. It suggests ways to keep memory sharp as people get older. Readers learn about important new research in identifying, treating, and preventing memory disorders, as well as new drugs that may slow memory decline. Caregivers receive practical advice on dealing with the day-to-day challenges of caring for people with dementia and Alzheimer's disease. Highlights for 2007 include:

- a discussion of promising new drugs for AD now in clinical trials
- latest research on MCI
- a new imaging agent that may help improve detection of dementia
- effects of depression and emotions on mental acuity
- accuracy of tests used to diagnose AD
- a memory timeline for normal brain aging
- suggestions for avoiding daily memory lapses.

Mayo Clinic AD Guide Updated

Mayo Clinic Guide to Alzheimer's Disease, 2006

Petersen, R. (ed.)

Available from the Mayo Clinic Bookstore, P.O. Box 3301, Big Sandy, TX 75755-9343. Phone: 1-800-291-1128; Website: http://bookstore.mayoclinic.com. PRICE: $29.95.

Many older adults find themselves second-guessing every memory lapse and wondering whether it is the start of dementia. One goal of this updated guide from the Mayo Clinic is to allay those fears. It explains changes in memory and cognition that are part of normal aging, and distinguishes these changes from dementia. The guide describes various types of dementia and clarifies how they differ. It walks the reader through the progressive stages of dementia, particularly of the Alzheimer's type. The text also provides an overview for the layperson of dementia-related research and describes practical steps to stay mentally sharp. The last chapter, composing about one-third of the book, presents tips and strategies for caregivers of people with dementia.

A History of Dementia

Self, Senility, and Alzheimer's Disease in Modern America: a History, 2006

Ballenger, J.F.

Available from the Johns Hopkins University Press, 2715 North Charles Street, Baltimore, MD 21218-4363. Phone: 410-516-6900; Website: www.press.jhu.edu. PRICE: $43.00.

This volume presents the cultural history of "senility" and AD in America. It compares attitudes about aging and dementia from the 19th century to the present. The book explores the reasons many Americans regard AD as the most devastating of all diseases, and it traces the origins of the dread Americans feel about aging and dementia. It explains how earlier attitudes differ from those of today and why people were, in some respects, more tolerant. It dissects the idea that a person with dementia loses his or her identity as

a person or "selfhood." Readers are challenged to reconsider what being a person means and the boundary between dementia and "normalcy." The book suggests the need for more balance between the search for means of prevention or a cure and attention to the social and moral complexities, stereotypes, and stigma faced by those with AD.

Disaster Preparedness for the Cognitively Impaired

Planning for a Pandemic/Epidemic or Disaster: Caring for Persons with Cognitive Impairment, 2006

Available from American Health Care Association, 1201 L Street, N.W., Washington, DC 20005. Phone: 202-842-4444. Fax: 202-842-3860. Website: www.ahea.org. PRICE: Free online access.

This guide, a three-page document prepared by a coalition of long-term care and consumer organizations, covers how to provide care for people with dementia during emergencies such as pandemic or epidemic disease outbreaks. The target audience is those developing emergency plans to guide non-licensed nursing home staff, staff in other residential care facilities, and others who may become involved in caregiving in an emergency, including untrained volunteers. The document is not intended as a substitute for facility training, but it provides important suggestions for facility administrators who are developing their own emergency plans, from maintaining fundamental hygiene, medication, and nutrition to handling increased risks of wandering and "catastrophic reactions" by agitated residents.

Handbook Provides Tips for Caregivers

The Caregiver Handbook: Powerful Tools for Caregivers, Second Edition, 2006

Available from Legacy Caregiver Services, 1015 NW 22nd Avenue, Portland, OR 97210. Phone: 503-413-8018. Website: www.legacyhealth.org. Price: $25.00.

This handbook is intended to increase caregivers' attention to self-care and strengthen their confidence to handle difficult situations, emotions, and decisions. In plain language, the authors provide exercises, practical advice, and vignettes to help caregivers:

- Reduce personal stress
- Communicate effectively with other family members, doctors, and paid helpers
- Practice self care
- Reduce guilt, anger, and depression
- Reduce tension and relax more
- Make tough decisions
- Set goals and problem solve.

This edition includes specific information for in-home caregivers, working caregivers, long-distance caregivers, and grandparent caregivers. Other chapters provide resource information to help caregivers cope with specific situations such as driving issues, sensory changes, elder abuse, and end-of-life care.

Brochure on Managing Caregiver Stress

Care for the Caregiver: Managing Stress

Available from the American Health Assistance Foundation, 22512 Gateway Center Drive, Clarksburg, MD 20871. Phone: 1-800-437-2423. Website: www.ahaf.org. Price: free.

This 12-page brochure from the Alzheimer's Family Relief Program, AHAF, provides brief, practical advice about stress management for AD caregivers. The brochure may be helpful for caregivers who need a quick overview of this subject. It emphasizes that the more caregivers learn about AD and the resources available, the better they can cope with stressful situations.

The brochure summarizes:

- why prolonged stress is harmful
- warning signs of stress
- recognizing what can and can't be changed
- tried-and-true techniques to reduce stress
- practicing a positive attitude
- other sources of help for caregivers.

November 28 - 29, 2007

Genetics of Neurodegenerative Disease Symposium, Boston, MA

Contact:
Merck Laboratories
33 Avenue Louis Pasteur
Boston, MA 02115
Telephone: 617-992-2000
Website: *www.merckboston.com*

November 29 - 30, 2007

Alzheimer's Drug Development Summit, Arlington, VA

Contact:
Center for Business Intelligence
500 W. Cummings Park, Suite 5100
Woburn, MA 01801
Telephone: 1-800-817-8601
Email: cbireg@cbinet.com

December 3 - 4, 2007

CNS Diseases Partnering Conference, San Francisco, CA

Contact:
GTCbio
434 W. Foothill Boulevard
Monrovia, CA 91016
Telephone: 626-256-6405
Fax: 626-256-6460
Website: *www.gtcbio.com/conference/index.aspx*

March 3 - 4, 2008

The 22nd Annual Joseph and Kathleen Bryan Alzheimer's Disease Research Center Conference, Duke University Medical Center, "Alzheimer's 2008: Genes, Environment and Memory," Research Triangle Park, NC

Contact:
Lisa Gwyther, MSW
Duke University Alzheimer's Disease Center
Telephone: 1-800-646-2028
or: Tia Marsh
Email: tia.marsh@duke.edu

March 8, 2008

Bridging Cultures: Improving Evaluation and Treatment of Cognitive Disorders, San Francisco, CA

Contact:
University of California, San Francisco
Office of Continuing Medical Education
P.O. Box 45368
San Francisco, CA 94145-0368
Telephone: 415-476-5808
Website: *www.cme.ucsf.edu*

March 27 - 30, 2008

Aging in America: 2008 NCOA-ASA Conference, Washington, D.C.

Contact:
American Society on Aging and National Council on Aging
833 Market Street
Suite 511
San Francisco, CA 94103
Telephone: 415-974-9675
Fax: 415-495-6509
Email: registrar@asaging.org
Website: *www.aging conference.org*

April 30 - May 4, 2008

American Geriatrics Society Annual Scientific Meeting, Washington, DC

Contact:
American Geriatrics Society
The Empire State Building
350 Fifth Avenue, Suite 801
New York, NY 10118
Telephone: 212-308-1414
Fax: 212/832-8646
Email: info@americangeriatrics.org
Website: *www.americangeriatrics.org/news/meeting/2008/index.shtml*

July 26 - 31, 2008

International Conference on Alzheimer's Disease, Chicago, IL

Contact:
The International Conference on Alzheimer's Disease and Related Disorders
Alzheimer's Association
225 North Michigan Avenue
Suite 1700
Chicago, Illinois 60601-7633
Telephone: 312-335-5790
Fax: 1-866-699-1235
Email: icad@alz.org

August 24 - 27, 2008

16th Annual Dementia Care Conference, Garden Grove, CA

Contact:
Alzheimer's Association
225 North Michigan Avenue
Suite 1700
Chicago, Illinois 60601-7633
Telephone: 312-335-5790
Email: careconference@alz.org
Website: *www.alz.org/careconference*

Order Publications & Sign-up for E-mail Alerts

❑ *What Happens Next? a booklet for those diagnosed with Alzheimer's disease or a related disorder*

❑ *Progress Report on Alzheimer's Disease 2005-2006*—the new annual AD research summary from the NIA

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Or, order these materials by mail or fax to:
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Call our toll-free telephone number: 1-800-438-4380,
or contact us via e-mail: adear@nia.nih.gov

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