Each week, the staff at the Abigail Van Buren Alzheimer’s Disease Research Clinic & The Study of Aging Department meet remarkable families offering to participate in research. One such dedicated family recently brought thirteen family members from all across the country to Mayo Clinic to participate in research!

To begin their journey, a few family members left their homes in the south part of the country, others from the Chicago area, and the rest from the Grand Rapids area. They all convened in Michigan, where they boarded a van for the trip to Rochester, Minnesota.

The family spent two days at the Abigail Van Buren Alzheimer’s Research Clinic. During that time, each family member agreed to undergo memory testing and lab-work, and a visit with the neurologist. “I felt very reassured knowing my mother got really good care while she was here” said one of the family members. “Our family had no idea just how important our participation was” said another. Between all the appointments and testing, the family reveled in the time they were able to spend together. They enjoyed dining out, touring the city and being in one another’s company – something they are not able to do very often these days.

The staff at the Abigail Van Buren Alzheimer’s Disease Research Clinic feel privileged to meet and work with inspiring families such as this one.

Without You, 
We can’t move forward.

“Our families participation may have been good for research, but it was something very, very special for us.”

Some of What’s Inside

• Scientists Find New Genetic Clue to Cause of Alzheimer’s Disease
• Lifestyle Habits in Preventing Alzheimer’s Disease
• Understanding Psychometric Testing

... AND MORE
The Mayo Olmsted Study of Aging
By Ronald C. Petersen, M.D., Ph.D.

The Mayo Olmsted Study of Aging began in January 2004 with a goal of recruiting 1,200 people ages 70-89, living in Olmsted County who were cognitively normal (no diagnosis of dementia). In September 2004, the Mayo Clinic Research Center was awarded additional funding from the National Institute on Aging to increase the sample size to 2,300. The overall theme of the Mayo Olmsted Study of Aging is to explore cognitive (thinking) function in individuals as they age. Through this study, we ultimately hope to be able to develop prediction models that will help us differentiate between those people who are aging well, from those who are experiencing a cognitive decline.

We know that in normal aging there may be some changes with our mental ability such as a slower speed of processing, difficulty retrieving information rapidly, and a reduced ability to focus on multiple tasks. These changes are expected and do not greatly affect a person’s day to day life. We have also identified that some people may have symptoms of forgetfulness beyond what we would expect for normal aging, but not to the degree to meet criteria for a diagnosis of dementia. We have characterized this condition as Mild Cognitive Impairment (MCI). MCI is an intermediate state between the cognitive changes of normal aging and the earliest features of Alzheimer’s disease (AD). Previous research indicates that persons with MCI are at an increased risk of progressing to dementia or AD at an accelerated rate. Consequently, one of the primary objectives of The Study of Aging is to identify MCI in a random sample of people from Olmsted County.

In total, we have evaluated a total of 2,300 persons: 74.1% were found to be normal, 11.9% had MCI, 4.2% had non-amnestic MCI, which means they are cognitively impaired but do not have significant memory impairment and 9.8% were found to be demented.

This data comprises some of the first population-based estimates of MCI in the country. This group of persons with MCI will serve as a rich resource for numerous other studies. They will be compared to the normal subjects and within the MCI subjects. Comparisons will be made between those who progress onto dementia and AD rapidly, versus those who remain stable.

The Men and Women from Olmsted County who are participating in The Study of Aging are to be commended. They are each part of a discovery of information that will change and benefit aging research around the county. We look forward to seeing these volunteers over the next several years.

In Appreciation,
Ronald Petersen
MD., PhD
Director, Mayo Olmsted Study of Aging and the Alzheimer’s Disease Research Center.

I am 84 years old but I do not feel old. I love to be with and work with people half my age. The study is a rewarding challenge for me.
Participant in Mayo Olmsted Study of Aging
Mental Exercise
Helps Maintain Some Seniors’ Thinking Skills

Certain Mental Exercises can offset some of the expected decline in older adults’ thinking skills and show promise for maintaining cognitive abilities needed to do everyday tasks such as shopping, making meals and handling finances, according to a new study. The research, funded by the National Institutes of Health (NIH) and published in the Dec. 20, 2006, Journal of the American Medical Association, showed that some of the benefits of short-term cognitive training persisted for as long as five years.

The Advanced Cognitive Training for Independent and Vital Elderly, or ACTIVE, Study is the first randomized, controlled trial to demonstrate long-lasting, positive effects of brief cognitive training in older adults. However, testing indicated that the training did not improve the participants’ ability to tackle everyday tasks, and more research is needed to translate the findings from the laboratory into interventions that prove effective at home.

The ACTIVE trial was funded by the National Institute on Aging (NIA) and the National Institute of Nursing Research (NINR). “This large trial found that community-dwelling seniors who received cognitive training had less of a decline in certain thinking skills than their peers who did not have training. The study addresses a very important hypothesis—that interventions can be designed to maintain cognitive function,” says NIA Director Richard J. Hodes, M.D. “The challenge now is to further examine these interventions and others to see how they can be employed in real-world settings.”

People in the three intervention groups attended up to 10 training sessions lasting 60 to 75 minutes each, over a five- to six-week period. The memory group learned strategies for remembering word lists and sequences of items, text, and story ideas and details. The reasoning group learned strategies for finding the pattern in a letter or word series and identifying the next item in a series. The speed-of-processing group learned ways to identify an object on a computer.
screen at increasingly brief exposures, while quickly noting where another object was located on the screen.

After the initial training, 60 percent of those who completed the initial training took part in 75-minute “booster” sessions designed to maintain improvements gained from the initial sessions.

The investigators tested the participants at baseline, after the intervention and annually over five years. They found:

• Immediately after the initial training, 87 percent of the speed-training group, 74 percent of the reasoning group and 26 percent of the memory group showed improvement in the skills taught.

• After five years, people in each group performed better on tests in their respective areas of training than did people in the control group. The reasoning-training and speed-training groups who received booster training had the greatest benefit.

“The improvements seen after the training roughly counteract the degree of decline in cognitive performance that we would expect to see over a seven- to 14-year period among older people without dementia,” says Dr. Willis.

The researchers also looked at the training’s effects on participants’ everyday lives. After five years, all three intervention groups reported less difficulty than the control group in tasks such as preparing meals, managing money and doing housework. Only the effect of reasoning training on self-reported performance of daily tasks was statistically significant. Those who received speed-of-processing training and follow-up booster training scored better on how quickly and accurately they could find items on a pantry shelf, make change, read medicine dosing instructions, place telephone calls and react to road traffic signs.

“Beyond middle age, people worry about their mental sharpness getting ‘rusty.’ This study offers hope that cognitive training may be useful,” notes Richard Suzman, Ph.D., director of the NIA’s Behavioral and Social Research Program, which sponsored the work. “ACTIVE has shown that relatively brief targeted cognitive exercises can produce durable changes in the skills taught. I would now like to see studies aimed at producing more generalized changes, perhaps through more intensive and broader interventions.”

The NIA leads the federal effort supporting and conducting research on aging and the medical, social and behavioral issues of older people. For more information on research and aging, go to www.nia.nih.gov.

By the time you’re eighty years old

you’ve learned everything...

You only have to remember it. George Burns
Variations in a gene known as SORL1 may be a factor in the development of late onset Alzheimer’s disease, an international team of researchers has discovered. The genetic clue, which could lead to a better understanding of one cause of Alzheimer’s, is reported in *Nature Genetics* online, Jan. 14, 2007, and was supported in part by the National Institutes of Health (NIH).

The researchers suggest that faulty versions of the SORL1 gene contribute to formation of amyloid plaques, a hallmark sign of Alzheimer’s in the brains of people with the disease. They identified 29 variants that mark relatively short segments of DNA where disease-causing changes could lie. The study did not, however, identify specific genetic changes that result in Alzheimer’s.

Richard Mayeux, M.D., of Columbia University, Lindsay Farrer, Ph.D., of Boston University, and Peter St. George-Hyslop, M.D., of the University of Toronto, led the study, which involved 14 collaborating institutions in North America, Europe and Asia, and 6,000 individuals who donated blood for genetic typing. The work was funded by NIH’s National Institute on Aging (NIA) and National Human Genome Research Institute (NHGRI), as well as by 18 other international public and private organizations.

“We do not fully understand what causes Alzheimer’s disease, but we know that genetic factors can play a role,” says NIA director Richard J. Hodes, M.D. “Scientists have previously identified three genes, variants of which can cause early onset Alzheimer’s, and one that increases risk for the late onset form. This discovery provides a completely new genetic clue about the late onset forms of this very complex disease. We are eager to investigate the role of this gene further.”

Scientists think that in Alzheimer’s disease, amyloid precursor protein, or APP, is processed into amyloid beta protein fragments that make up plaques in the brain. The researchers began their search for genetic influences amid a group of proteins that transport APP within cells, looking for small changes, or “misspellings,” in seven genes involved in moving APP within cells.

To start, the scientists combed two large data sets of genetic information from families in which more than one person has Alzheimer’s disease. They were soon able to see that many of the families with Alzheimer’s had variations in the SORL1 gene but not consistently in any of the other six genes.

They then expanded their search to genetic data sets from families of Northern European, Caribbean Hispanic, Caucasian, African American, and Israeli Arab heritage for changes in the SORL1 gene.

Again, they found the same association between SORL1 variations and Alzheimer’s disease. Searching additional data sets provided by Steven Younkin, M.D., Ph.D., of the Mayo Clinic further confirmed the association of SORL1 variations and Alzheimer’s.

“We are seeing the gene implicated in multiple data sets, across ethnic and racial groups,” says Farrer. He adds that the group was “encouraged and excited” by cell biology experiments that demonstrate SORL1’s role in production of beta amyloid fragments.

Examining blood cells from people with and without Alzheimer’s, the researchers found less than half the level of SORL1 protein in people with Alzheimer’s compared to people without the disease. In laboratory experiments, they found that altering the levels of SORL1 changed the way APP was moved around in cells, with low levels of SORL1 resulting in increased production of amyloid beta fragments while high levels decreased production.

For information on the NIA Alzheimer’s Disease Genetics Study, which is currently recruiting volunteers from families with two or more siblings affected by late onset Alzheimer’s disease, visit the study web site, www.ncrad.org, call 1-800-526-2839, or email alzstudy@iupui.edu.
Did you know . . .

George Burns made his last film at the age of 98.

Robert Frost wrote “In the Clearing” at the age of 88.

Winston Churchill remained a member of the Parliament until the age of 90.

Thomas Edison patented the disc phonograph at the age of 82.

or that Michelangelo completed a sculpture at the age of 82 and was working on a sculpture when he died at the age of 89?

M

aybe you are not feeling quite that ambitious these days. Not to worry, most of us can find many ways to remain active and productive without having a poem published or completing a masterful work of art.

In general, productivity can refer to any activity such as: doing housework, helping family and friends, volunteering, engaging in a favorite past time or hobby (gardening, painting, writing) or holding a job outside the home. I believe, there is a common misconception among many individuals that retirement includes years of inactivity and lack of productivity. However, I have not found this to be the case at all.

Working with elderly individuals as a Study Coordinator in the Olmsted County Study of Aging, I meet active, productive and truly amazing older people everyday. These individuals volunteer with community organizations and some continue to work full-time or part-time. I have met older men and women who sing, play the cello, organ, or other instruments (some even performing around the community). There are others who author books, run a couple miles a day, sculpt, and some who travel the US and abroad. All of these individuals inspire me and set an example of leading a full and productive life at any age.

So, are you feeling as if you’d like to be a bit more ‘productive’? The key is to select something that allows you to maintain a sense of confidence and competence, and contributes to your overall life satisfaction. One day it may be playing cards and volunteering, the next day it may be reading or calling up a friend who simply needs someone to talk to. It may even include participating in a research study at the Mayo Clinic. Research participation is a great way to feel productive, connected, and active in the community. Furthermore, research participation is an act of altruism and a gift to future generations.

Wishing you healthy and productive days!

Research Participant with Jamie Bennett, Study Coordinator
What could make more sense than to follow these three ‘Commandments of Successful Aging’? They seem so obvious that it is hard to understand why research would ever need to be done to prove their effectiveness. Yet, when it comes to trying to prevent or forestall Alzheimer’s disease (AD), it is not certain whether it is these activities, or something about the people who practice them, that reduce a person’s risk for AD.

The way that Alzheimer’s-related studies have looked at diet, exercise and leisure activities is through longitudinal observation of elderly people. In this type of research, persons are selected to be observed if they have normal range of cognition (thinking/memory) for their age. These subjects are then asked about their lifestyles, including diet, exercise levels, and participation in activities. After a period of time (generally 3 to 5 years) the participants are re-evaluated. At that time, most participants remain cognitively normal, but some will now have a dementia such as Alzheimer’s disease. Researchers then tabulate the lifestyle information that they obtained at the beginning of the study, and ask the question: Were there differences in the lifestyles among those who developed AD compared to those who did not?

This epidemiological (how diseases occur in difference groups and why) approach of longitudinal observation has been the only way in which issues of lifestyle and Alzheimer’s disease risk can be studied. Epidemiological studies are invaluable for learning about risks and protections from disease, but they have a fundamental weakness: They cannot prove that the risk factor they studied actually causes or prevents disease, or whether the risk factor is linked to something else. For example, if someone was studying the causes of lung cancer, it is likely that yellow-stained fingers are ‘associated’ with lung cancer. But of course, it is not the fact that the fingers are yellow that causes lung cancer. Instead, it is that cigarette smoking both makes the fingers yellow and causes the cancer. So, while observational research may be helpful in identifying a change or occurrence, it does not tell us with certainty what the cause of the change or occurrence actually is.

The better approach to test whether a lifestyle activity (diet, exercise etc) is helpful in preventing disease is to do a clinical trial. In a clinical trial, participants are randomly assigned to receive a particular diet, exercise program or some other lifestyle choice. A separate group of other participants are assigned to a comparison program. However, there are challenges with this approach. First, clinical trials are incredibly expensive. Second, in observing something such as a diet, it is practically impossible to assure that someone assigned to a particular diet will follow it for the several years needed to see what the effect really is. Therefore, researchers must rely on the first approach, the epidemiological approach – which, though not cheap, is at least feasible on a large scale. It is important to realize that whenever you read about a study on diet or exercise program suggesting that it is helpful to prevent AD, the results are almost always based on the epidemiological approach. Although not without flaws, we have learned a thing or two from these studies.

For instance, over the past decade there has been interest in learning whether a specific diet has any impact on ones risk for AD. There are good diets, better diets and peculiar diets. Observational studies have provided evidence that diets lower in fats or higher in fish (the so-called Mediterranean diet) are associated with a lower risk of getting Alzheimer’s disease. Mediterranean diets tend to be rich in fruits and vegetables, and lower in red meat. It isn’t known, of course, what particular component in a Mediterranean diet is protective, or for that matter, what it is in
Other diets that increase risk for AD. We need to learn more. The Mayo Clinic Alzheimer Disease Research Center is enrolling persons with early stage Alzheimer’s disease in a trial of ω(omega)-3 fatty acids, something that is found in fish and fish oils. More information about the study can be found on page 17 of this newsletter.

Physical exercise is another area that research has been looking at, asking the question: Is physical exercise protective against AD? Here, the data from the epidemiological studies has been mixed. Some studies find benefits, while others do not. One of the problems with interpreting either the ‘diet studies’ or the ‘exercise studies’ is that both diet and exercise have an impact on heart disease. Although our focus is on AD, we cannot ignore the fact that heart disease is the number one cause of death in the elderly. Diet has been conclusively linked to heart disease, at least as far as obesity, diabetes and cholesterol are concerned. We know that lack of exercise is certainly a risk factor for obesity and heart disease. So someone could ask: “If exercise and healthy diets are good to prevent heart disease, is that why AD risk is lower?” The answer is a definite ‘Maybe’.

Leisure activities, diet and exercise levels are choices that people make based on life-long behavior patterns. Someone who exercised regularly or sang in a choir as a young adult is more likely to continue either once they get older. By the same token, dietary habits are probably established early in life. A child with poor eating habits is more likely to be an adult with poor eating habits. Although, lifestyle behaviors can change, it is more likely that fundamental changes in a person’s diet or exercise patterns are the exception rather than the rule for older adults. So the question remains, is it an individual’s diet (exercise or activity) that protect them from diseases such as Alzheimer’s, and do these behaviors need to be part of a broader cultural and lifelong pattern of behavior? We don’t know. It remains unclear whether it is the lifestyle, or the person with that lifestyle, that makes people more or less susceptible to the risks of AD.

The reality is that the information we have doesn’t really answer the question whether any of these behaviors (diet, exercise, or stimulating leisure activities) alone serve to protect the brain from AD. On the other hand, it is common sense that healthy diets, exercise and mentally stimulating activities are good for people of all ages in many ways. We know that diet and exercise reduce risk for heart disease, diabetes and hypertension, and no one would argue that there are significant benefits to active social engagement. Although there is no guarantee that healthy behaviors will prevent diseases like Alzheimer’s, they can improve how you feel on a daily basis and give you some peace of mind that you are taking charge and doing all you can do for your own health. Similarly, healthy behaviors are likely to promote self esteem and feelings of accomplishment. When all is said, there is nothing to lose and plenty to gain from incorporating healthy lifestyle behaviors into your daily routine, no matter what your age.

David Knopman, M.D.
We all look forward to a good night’s sleep. Getting enough sleep and sleeping well help us stay healthy. Many older people do not enjoy a good night’s sleep on a regular basis. They have trouble falling or staying asleep. Sleep patterns change as we age, but disturbed sleep and waking up tired every day is not part of normal aging. In fact, troubled sleep may be a sign of emotional or physical disorders and something you should talk about with a doctor or sleep specialist.

Sleep and Aging
There are two kinds of sleep in a normal sleep cycle—rapid eye movement or dreaming sleep (REM) and quiet sleep (non-REM). Everyone has about four or five cycles of REM and non-REM sleep a night. For older people, the amount of time spent in the deepest stages of non-REM sleep decreases. This may explain why older people are thought of as light sleepers. Although the amount of sleep each person needs varies widely, the average range is between 7 and 8 hours a night. As we age, the amount of sleep we can expect to get at any one time drops off. By age 75, for many reasons, some people may find they are waking up several times each night. But, no matter what your age, talk to a doctor if your sleep patterns change.

Common Sleep Problems
At any age, insomnia is the most common sleep complaint. Insomnia means:

- Taking a long time to fall asleep (more than 30 to 45 minutes)
- Waking up many times each night
- Waking up early and being unable to get back to sleep, or
- Waking up feeling tired.

With rare exceptions, insomnia is a symptom of a problem, not the problem itself. Insomnia can be linked with other sleep disorders such as sleep apnea, a common problem that causes breathing to stop for periods of up to two minutes, many times each night. There are two kinds of sleep apnea:

- Obstructive sleep apnea is an involuntary pause in breathing—air cannot flow in or out of the person’s nose or mouth.
- Central sleep apnea is less common and occurs when the brain doesn’t send the right signals to start the breathing muscles.

In either case, the sleeper is totally unaware of his or her struggle to breathe. Daytime sleepiness coupled with loud snoring at night are clues that you may have sleep apnea. A doctor specializing in sleep disorders can make a diagnosis and recommend treatment.

Treatments include learning to sleep in the correct position, devices that help keep your airways open, medication, and surgery.
Suggestions for a Good Night's Sleep
A good night's sleep can make a big difference in how you feel. Here are some suggestions to help you:

- Follow a regular schedule—go to sleep and get up at the same time. Try not to nap too much during the day—you might be less sleepy at night.

- Try to exercise at regular times each day.

- Try to get some natural light in the afternoon each day.

- Be careful about what you eat. Don’t drink beverages with caffeine late in the day. Caffeine is a stimulant and can keep you awake. Also, if you like a snack before bed, a warm beverage and a few crackers may help.

- Don’t drink alcohol or smoke cigarettes to help you sleep. Even small amounts of alcohol can make it harder to stay asleep. Smoking is dangerous for many reasons including the hazard of falling asleep with a lit cigarette. The nicotine in cigarettes is also a stimulant.

- Create a safe and comfortable place to sleep. Make sure there are locks on all doors and smoke alarms on each floor. A lamp that's easy to turn on and a phone by your bed may be helpful. The room should be dark, well ventilated, and as quiet as possible.

- Develop a bedtime routine. Do the same things each night to tell your body that it’s time to wind down. Some people watch the evening news, read a book, or soak in a warm bath.

- Use your bedroom only for sleeping. After turning off the light, give yourself about 15 minutes to fall asleep. If you are still awake and not drowsy, get out of bed. When you get sleepy, go back to bed.

- Try not to worry about your sleep. Some people find that playing mental games is helpful. For example, think black—a black cat on a black velvet pillow on a black corduroy sofa, etc.; or tell yourself it’s five minutes before you have to get up and you’re just trying to get a few extra winks.

If you are so tired during the day that you cannot function normally and if this lasts for more than 2–3 weeks, you should see your family doctor or a sleep disorders specialist.

Research Appreciation Brunch

Study of Aging research volunteers enjoy an Appreciation Brunch
Rapid advances in our knowledge about AD have led to the development of many new drugs and treatment strategies. However, before these new strategies can be adopted, they must be shown to work in patients. This means that clinical trials - studies in people to rigorously test how well a treatment works - have become an increasingly important part of AD research. Advances in treatment are only possible through the participation of patients and family members in clinical trials.

Clinical trials are the primary way that researchers find out if a promising treatment is safe and effective for patients. Clinical trials also tell researchers which treatments are more effective than others. Trials take place at private research facilities, teaching hospitals, specialized AD research centers, and doctors’ offices.

Participating in a clinical trial is a big step for people with AD and their caregivers. That’s why physicians and clinical trials staff spend lots of time talking with participants about what it’s like to be in a trial and the pros and cons of participating. Here are some things that potential participants might want to know about clinical trials.

What kind of trials are there?
- Treatment trials with existing drugs assess whether an already approved drug or compound is useful for other purposes. For example, one current trial is testing whether anti-inflammatory drugs already used to treat arthritis might help to prevent AD.
- Treatment trials with experimental drugs or strategies find out whether a brand new drug or treatment strategy can help improve cognitive function or lessen symptoms in people with AD, slow the progression to AD, or prevent it. Potential drugs tested in these trials are developed from knowledge about the mechanisms involved in the AD disease process. These compounds are rigorously tested in tissue culture and in animals for their action. Safety and effectiveness studies are also conducted in animals before the compounds are tested in humans.
- If results show that the treatment appears safe, it will be tested in Phase II and Phase III clinical trials. These trials involve larger numbers of people over longer periods of time. In these trials, the study team wants to know whether the treatment is safe and effective and what side effects it might have.

After these phases are complete and investigators are satisfied that the treatment is safe and effective, the study team may submit its data to the Food and Drug Administration (FDA) for approval. The FDA reviews the data and decides whether to approve the drug or treatment for use in patients.

What happens when a person signs up for a clinical trial?
First it is important to learn about the study. Study staff explains the trial in detail to potential research participants and describe possible risks and benefits. Staffs also talk about the participants’ rights as research volunteers, including their right to leave the study at any time. Participants and their family members are entitled to have this information repeated and explained until they feel they understand the nature of the study and any potential risks.
Once all questions have been answered and if there is still interest in being a part of the study, a patient participant is asked to sign an informed consent form. **Laws and regulations regarding informed consent differ across States and research institutions, but all are intended to ensure that patient participants are protected and well cared for.**

In some cases, a patient participant may no longer be able to provide informed consent because of problems with memory and confusion. In such cases, it is still possible for an authorized representative (usually a family member) to give permission for the patient to participate. For example, the patient participant may have previously included research participation as part of his or her durable power of attorney.

The person (proxy) exercising the durable power of attorney can decide to let the patient participate in a trial if they are convinced that the patient would have wanted to consent if able to do so. Even so, it is still important that patients assent to be in the study, even if they can no longer formally consent to it. Different States have different laws about who is a legal representative. These laws are in a state of flux as researchers and the public grapple with the ethical issues of proxy consent.

Next, patients go through a screening process to see if they qualify to participate in the study. If they qualify and can safely participate, they can proceed with the other parts of the study.

**What happens during a trial?**
If participants agree to join the study and the screening process shows they’re a good match, they have a “baseline” visit with the study staff. This visit generally involves a full physical exam and extensive cognitive and physical tests. This gives the study team information against which to measure future mental and physical changes. Participants also receive the test drug or treatment. As the study progresses, participating patients and family members usually must follow strict medication or treatment instructions and keep detailed records of symptoms.

Every so often, participants visit the clinic or research center to have physical and cognitive exams, give blood and urine samples, and talk with study staff. These visits allow the investigators to assess the effects of the test drug or treatment, see how the disease is progressing, and see how the participant and the caregiver are doing.

In most clinical trials, participants are randomly assigned to a study group. One group, the test group, receives the experimental drug. Other groups may receive a different drug or a placebo (an inactive substance that looks like the study drug). Having the different groups is important because only by comparing them can researchers be confident that changes in the test group are the result of the experimental treatment and not some other factor.
In many trials, no one - not even the study team - knows who is getting the experimental drug and who is getting the placebo or other drug. This is called “masking” meaning that the patient/family member and the staff are “blind” to the treatment being received.

**What should people consider before participating in a clinical trial?**

**Expectations and motivations.** Clinical trials generally don’t have miraculous results. The test drug or treatment may relieve a symptom, change a clinical measurement, or reduce the risk of death. With a complex disease like AD, it is unlikely that one drug will cure or prevent the disease. Some people choose not to participate or drop out of a study because this reality doesn’t meet their expectations. Others participate because they realize that even if the benefit to them may be slight, they are making a valuable contribution to knowledge that will help future patients.

**Uncertainty.** Some families have a hard time with the uncertainties of participation - not knowing whether the person is on the test drug or the placebo, not being able to choose which study group to be in, not knowing for a long time whether the study was successful or not. Ongoing and open communication with study staff can help to counter this frustration.

**Finding the right clinical trial.** Some clinical trials want participants who are cognitively healthy or have only mild symptoms because they are testing a drug that might delay the decline in cognitive function. Other trials are interested in working with participants who have more advanced AD because they are testing a drug that might lessen behavioral symptoms, or they are testing new strategies to help caregivers. Even though a participant may not be eligible for one trial, another trial may be just right.

**The biggest benefit of all.** Many families find that the biggest benefit of participating in a clinical trial is the regular contact with the study team. These visits provide an opportunity to get state-of-the-art AD care and also to talk on an ongoing basis with experts in AD who have lots of practical experience and a broad perspective on the disease. The study team understands and can provide advice on the emotional and physical aspects of the person with AD and the caregivers’ experience. They can suggest ways to cope with the present and give insights into what to expect in the future. They also can share information about support groups and other helpful resources.

**For more information**

For a list of clinical trials on Alzheimer’s disease and dementia currently in progress at centers throughout the U.S., go to the ADEAR Clinical Trials Database.

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The Mayo Clinic Alzheimer’s Disease Research Center is currently one of 31 NIA (National Institute of Aging) funded centers across the United States.

Researchers at NIA-funded Alzheimer’s Disease Centers are working to translate research advances into improved diagnosis and care for Alzheimer’s disease (AD) patients while, at the same time, focusing on the program’s long-term goal—finding a way to cure and possibly prevent AD.
Many individuals who participate in memory related research are scheduled to receive **Psychometric Testing**. The professionals who administer the tests at the Mayo ADRC answer some of the most common questions they receive. The following information should provide a better understanding of what the tests involve and why they are vital to research.

**Who is a Psychometrist?**
A Psychometrist is someone who administers and scores psychometric tests. They are a trained professional and work under the supervision of a licensed psychologist or neuropsychologist.

**What is psychometric testing?**
Psychometric testing is a standardized way to assess memory and thinking skills. The word “test” often times makes people feel anxious, so think of it as a variety of questions and activities that you will go through. Some examples of the activities and questions include: Making designs with blocks, naming common objects, remembering short stories, word memorization, or drawing simple shapes. The tests are NOT something that you can pass or fail. Some parts of the testing might seem easy and rather fun, while other parts can be difficult or frustrating.

**Why are Psychometric tests given to participants in memory related research?**
Psychometric tests are a way for the researchers to get an idea of what is “normal” for each individual. Everyone has things they are good at and things that they struggle with. After initial tests are given, a baseline score is collected from which future testing can be compared.

**What are the tests like? Are they hard? Should I know all the answers?**
The tests are designed so that no one gets everything right on every test. Some of the tests might seem extremely easy, and some might seem impossible, everyone’s view is different. The key is to not worry about knowing all of the answers and give it your best shot.

**How long do the tests take?**
Test batteries can take between 45 minutes and 3 hours depending on the research project.

**Should I study at home before I take the tests?**
There is really no way to study for these tests. Because the testing activities are not things you do on a regular basis, it would be hard to “brush up” before you come in.

**What will I learn about me from these tests?**
The tests are designed to give us a picture of how you function in terms of learning, memory, language, attention/concentration and visual spatial skills. They are not pass/fail like a school test, but they help to identify your strengths and weaknesses.

**Will I be informed how I did?**
A Psychometrist cannot provide the results because they are not trained in test interpretation. Additionally, since the testing is being done for research, there will be no formal interpretation made by a Neuropsychologist. If there are concerns on your testing you may be asked to complete additional tests.
Is there anything I should do before my testing that could help me?
The best advice is to get good nights sleep the night before your testing is scheduled. When you come in you will be offered a snack. Being well rested and nourished can enhance performance on mental activities. Try to relax and simply do the best that you can. We realize that sometimes this is easier said then done.

How do these tests help with your research?
These tests help us determine what is considered to be normal functioning for someone of the same age and educational background. We use the test data along with questionnaires and the neurological examination performed by the physician to determine the point at which someone is showing signs of impairment, although this can be a very fine line. One of the goals of our research is to better understand when someone has moved from normal aging into mild cognitive impairment or dementia.

“I don’t like the way I look in the mirror,
because I don’t feel THAT bad!”
– 90 year old participant in the family study—one of 17 children
The Alzheimer’s Disease Research Center
Current Research Participation Opportunities

Imagine a world without Alzheimer’s.
Imagine helping to stop the progression of this terrible disease.

The Alzheimer’s Disease Neuroimaging Initiative (ADNI) is a major research study, sponsored by the National Institutes of Health, to examine how brain imaging technology (for example MRI’s) can be used with other tests to measure the progression of mild cognitive impairment (MCI) and early Alzheimer’s disease (AD). This information will aid future clinical trials by providing a standard assessment tool to measure the effects of treatments being studied.

Researchers are looking for volunteers to participate in the study who are between 55 and 90 years of age and who:

- are in good general health with no memory problems, OR
- are in good general health but with memory problems or concerns, OR
- have a diagnosis of early Alzheimer’s disease.

The Genetics Study

This is a nationwide study to find genes that play a role in late-life AD and understand how they work. Scientists hope this all-out effort will speed up the discovery of the genes that increase the risk of AD later in life and how to prevent it.

Researchers are looking for families with at least 3 members, who can donate blood, including:

- Two siblings (brothers or sisters) who developed AD after the age of 60, AND
- Another family member over 50 who may have memory loss OR a family member over 60 who does not have any memory loss.
- Healthy individuals at least 60 years old with no memory complaint, and no 1st degree relatives diagnosed with dementia.
“There were people in the past who made our lives better so we have an obligation to help the future generations”
72 year old research participant

Clinical Trial of Docosahexaenoic Acid (DHA)
The Mayo Clinic Alzheimer’s Disease Research Center (ADRC) is enrolling subjects in a clinical trial of Docosahexaenoic acid (DHA) beginning in May of 2007. DHA is a major component of fish oil, something that has been repeatedly linked to protection from Alzheimer’s disease in observational studies. The study will last for 18 months. There will be 8 required visits to the Mayo Alzheimer Center over this time. MR scans of the brain will be done at the beginning and ends of the study. Patients may remain on their current anti-Alzheimer drugs.

Researchers are looking for:
• Persons with mild to moderate Alzheimer’s disease who live at home with a caregiver. This caregiver must have daily, or nearly daily contact with the patient.
• Participants can only be those who eat less than 2 fish meals per week.

Study of Sleep Apnea:
The study is being done to see if patients (and their partner’s) quality of life improve when the patient uses CPAP. It is also looking at compliance in using the CPAP machine.

Researchers are looking for persons:
• Who are forgetful plus suspected or diagnosed with Mild Cognitive Impairment (MCI) or Alzheimer’s Disease (AD)
• Suspected or diagnosed with Obstructive Sleep Apnea (OSA), with loud snoring, gasps, snorts, or stop-breathing episodes while sleeping
• Between the ages of 50-90 years
• On stable medications for the past month
• Who have a regular bedpartner or someone who sleeps in the same room on a regular basis
• Who are not currently being treated with continuous positive airway pressure (CPAP)

Persons who qualify will undergo an evaluation by a neurologist, an overnight sleep study, and brief tests of memory and completion of questionnaires. The evaluations, tests, questionnaires, and sleep study are conducted free-of-charge.

The Memory Support Program
Individuals diagnosed with Mild Cognitive Impairment often experience subtle, but noticeable changes in their memory. A memory support system is being tested to determine if it may provide assistance to these individuals now and into the future. The overall goal of the project is to better understand the impact and value of a system that applies cognitive rehabilitation techniques through an intensive training program.

• Individuals diagnosed with amnestic Mild Cognitive Impairment may be eligible to participate. A program partner who can accompany the participant to 12 one-hour training session over a six week period is required. The program partner must be someone the participant has regular contact with.

Caregiver Research at the University of Minnesota
Dr. Joe Gaugler, Assistant Professor in the School of Nursing and Center on Aging at the University of Minnesota is conducting this study. The purpose of this study is to determine how individually tailored, comprehensive counseling and support is effective for adult children who care for parents with Alzheimer’s disease or similar dementias.

• Adult children of parents with a diagnosis of Alzheimer’s disease or a similar memory disorder are eligible to participate. The parents with Alzheimer’s disease (or similar dementia) must also live at home alone, with adult children, or with other relatives in the community.

For additional information on any of these studies, contact the Mayo Clinic Alzheimer’s Disease Research Center at 507.284.1324 or e-mail Angela Lunde at lunde.angela@mayo.edu
Question: Is it true that the Mediterranean diet prevents Alzheimer's?

Answer: At this point, it's not clear that it does.

A study published in the Annals of Neurology in June 2006 suggests that people who eat a “Mediterranean” diet — rich in fruits, vegetables, olive oil, legumes, cereals and fish — have a lower risk of developing Alzheimer’s disease.

Researchers examined the health and diet of more than 2,000 people over a four-year period. The average age of study participants was 76. None of the participants had Alzheimer’s disease at the start of the study. By the end of the study, 260 participants had been diagnosed with Alzheimer’s disease.

Over the course of the study, researchers evaluated how closely participants followed a published definition of the Mediterranean diet. Participants who stuck most closely to the diet were less likely to develop Alzheimer’s than were participants who didn’t follow the diet.

Although this is an intriguing finding, more research is needed to evaluate the potential effects of diet and lifestyle on the risk of Alzheimer’s disease. An equally valid interpretation of the findings would be that people who had difficulty following a diet plan are more likely to develop Alzheimer’s disease and that also makes some sense.

All research participation is an act of altruism and a gift to future generations. Ultimately thousands may benefit from the willingness of those who choose to become involved.
Awards & Acknowledgements

Glenn Smith, PHD
Professor of Psychology, Mayo Clinic College of Medicine. Dr. Smith recently received the Mayo School of Graduate Medical Education Teacher of the Year Award. Recipients of the Teacher of the Year Awards are nominated and voted on by residents and fellows in the respective programs. Dr. Smith is the Director of the Alzheimer’s Disease Research Center, Education Core.

Cliff Jack, MD
Professor of Radiology, Mayo Clinic College of Medicine. Dr. Cliff was named the Alexander Family Professor of Alzheimer’s Disease Research by the institution. This honor recognizes his Dr. Jack’s contributions to the program, the institution and the field.

Kejal Kantarci, MD
Assistant Professor of Radiology, Mayo Clinic College of Medicine. Dr. Kantarci received the Beeson K Award from NIA, AFAR and the other private foundations. This award acknowledges Dr. Kantarci’s contributions to the field and her promise for the future. She will be continuing her work on imaging in aging and dementia.

The Mayo Clinic Alzheimer’s Disease Research Center (ADRC) conducts many types of research studies related to dementia, as well as normal or successful aging. The Mayo ADRC is currently one of 32 NIA (National Institute of Aging)-funded centers across the United States. Each of these centers are working to translate research advances into improved diagnosis and care for Alzheimer’s disease (AD) patients while, at the same time, focusing on the program’s long-term goal of finding a way to cure and possibly prevent AD.

For patients and families affected by AD, the Mayo Clinic Alzheimer’s Disease Research Center offers:

• Diagnosis and medical management.
• Information about the disease, as well as appropriate services and resources for patients and families.
• Opportunities for volunteers to participate in drug trials, clinical research projects, and special studies.
• Opportunities for volunteers and their families to participate in support groups, education programs and special conferences.

The Mayo Clinic Alzheimer’s Disease Research Center needs hundreds of individuals to volunteer. At any given time this may include persons with Mild Cognitive Impairment (MCI), early dementia (such as Alzheimer’s disease or Lewy Body Dementia) and even persons with no memory problems at all. In science terminology, such people are called “normal controls.” Without cognitively healthy people willing to participate, Alzheimer’s research cannot advance.

Without You,
We can’t move forward.

Mayo Clinic Alzheimer’s Disease Research Center
Health Aging Project
507.284.1324