January

1

Alzheimer’s Care: Grief is Heaviest Burden for Caregivers
The hardest part of caring for loved ones with Alzheimer’s disease is not the everyday practical challenge, but rather the emotional impact of losing the support and companionship of the loved one, according to research conducted at the University of Indianapolis. “The fundamental barrier experienced by Alzheimer’s caregivers appears to be a combination of anticipatory grief and ambiguous loss, rather than hands-on care issues,” said researcher Jacquelyn Frank, Ph.D. American Journal of Alzheimer’s Disease and Other Dementias, December 2007/January 2008;22(6):516–527.

Gene Mutation Plus Stroke Increases Dementia Risk
According to researchers, individuals who experience a stroke and have the apolipoprotein E (APOE) e-4 gene have a greater risk of dementia than individuals with just one—or none—of these factors. Neurology, January 1, 2008(1);70:9–16.

NSAIDs Associated with Lower Risk of Dementia, Study Suggests
Study results indicated that non-steroidal anti-inflammatory drugs (NSAIDs) can reduce the risk of various forms of dementia in older adults. However, only those with the APOE-e4 gene had a reduced risk of developing Alzheimer’s. These findings provide clues for studies of the underlying biology of dementia and Alzheimer’s disease. Neurology, January 1, 2008(1);70:17–24.

2

“Use It or Lose It” Theory Gains Ground
Studies of the developing brain gave scientists another important clue to why nerve cells die in neurodegenerative diseases. The studies revealed that a baby’s brain generates roughly double the number of nerve cells it needs to function, with cells that receive both chemical and electrical stimuli from other cells surviving, and the remaining cells dying. Journal of Neuroscience, January 2, 2008;28(1):315–324.
10

**Lipids Reverse Plaque Formation**

Researchers discovered that naturally occurring lipids found throughout the brain can dissolve the large insoluble protein plaques characteristic of Alzheimer’s disease, releasing their smaller soluble components. This showed that, in a mouse model of Alzheimer's, plaque formation is reversible. These smaller soluble components may be a new target for disease intervention.


16

**Cholesterol Drugs Don’t Protect Against Alzheimer’s**

Autopies of brains from 262 individuals failed to show an association between statin use and reduced levels of Alzheimer’s-related brain changes. However, because relatively few of the those in the study used statins, the researchers conclude that further studies, possibly incorporating sophisticated brain imaging tests, will be needed to verify these results.

_Neurology_ online (Print: May 6, 2008;70(19):1795–1802.)

17

**Diabetes Plus Alzheimer’s Gene Ups Dementia Risk**

Among individuals who carry the APOE-e4 gene associated with an increased risk of Alzheimer’s disease, the risk of dementia is further increased for those who also have diabetes. Among the 2,547 study volunteers, the 253 volunteers who had diabetes alone at the start of the study had a 62 percent higher risk of developing Alzheimer’s disease. The 67 participants with both diabetes and APOE e-4 at the start of the study had a 2.5-fold risk of developing Alzheimer’s. The authors suggest that high blood sugar levels or reduced blood flow to the brain may increase the production or deposition of beta-amyloid and that large- and small-vessel damage in the brain caused by diabetes may impede the clearance of beta-amyloid.


17

**Tau Regulates Protein Movement in Neurons**

Researchers discovered that proteins carrying chemicals in nerve cells react differently when exposed to the tau protein, which is implicated in the development of Alzheimer’s disease. The proteins dynein and kinesin transport chemicals toward opposite ends of tracks called microtubules. Tau binds to the microtubule surface and acts like a speed bump to regulate protein traffic. These findings show a mechanism of regulating the transport of nutrients, signaling molecules and waste proteins along a nerve cell’s axon. Neurodegenerative diseases such as Alzheimer’s may arise when pieces of this shipping system go awry.

_Science_ online (Print: February 22, 2008;319(5866):1086–1089.)
18
*Altering Brain’s Lipid Metabolism Reduces Alzheimer Plaques in Mice*
Researchers learned that elevated levels of the protein ABCA1 sharply reduced buildup of beta-amyloid plaques in the brain in mice, potentially slowing the development of Alzheimer’s disease. ABCA1 helps the brain use cholesterol. The study raises the possibility of treating Alzheimer’s by altering the brain’s use of lipids, a class of compounds that includes cholesterol.
*Journal of Clinical Investigation* online (Print: February 1, 2008;118(2):671–682.)

**Enzyme Regulates Blood Flow to Neurons**
Research revealed that the human brain contains its own store of the enzyme (and stroke drug) tissue plasminogen activator (tPA), which appears to help regulate blood flow to brain cells. Scientists found that this natural tPA boosts blood flow to brain cells via its influence on nitric oxide (NO) synthase, which is essential to the production of nitric oxide. NO widens blood vessels and improves blood flow to neurons as they become more active. The new findings could have implications for the study of stroke and Alzheimer’s disease, which are both associated with marked declines in natural brain levels of tPA.
*Proceedings of the National Academy of Sciences* online (Print: January 22, 2008;105(3):1073–1078.)

19
*Less Education May Lead to Delayed Awareness of Alzheimer Onset*
Older adults with more education and higher levels of occupational achievement are better able to weather loss of brain volume, and even Alzheimer’s disease pathology, without showing signs of dementia, say researchers. Researchers also report that highly educated individuals who develop Alzheimer’s are likely to be diagnosed at a younger age. They suspect that people who spend fewer years in school may experience a slight but statistically significant delay in the realization that they’re having cognitive problems that could be Alzheimer’s disease, and therefore, seek treatment later in the disease process.
*Archives of Neurology,* January 2008;65(1):113–120.

23
*Study Examines Driving Skills Among People with Alzheimer’s Disease*
A study confirmed that people with early Alzheimer’s disease were involved in more traffic accidents and performed worse on road tests than drivers without cognitive impairment. The study also showed that some people with mild dementia are able to continue driving safely. The study results suggest that regular driving assessments may reduce the frequency of motor vehicle accidents among drivers with mild dementia by increasing awareness of driving ability among affected individuals and their caregivers.
*Neurology* online (Print: April 1, 2008;70(14):1171–1178.)

29
*Phase II Study of Dimebon Accepted as a Pivotal Study*
The maker of the experimental Alzheimer drug Dimebon received regulatory sign-off to conduct a single phase III trial study. The U.S. Food and Drug Administration agreed to accept a previously completed phase II study of Dimebon conducted in Russia as one of the two pivotal studies required to support the drug’s approval to treat Alzheimer’s disease. The data from the phase II study supported the benefits of Dimebon, but were controversial because not everyone believes the results could be replicated in the United States or Europe.
www.thestreet.com
Functional MRI Aids Understanding of Memory Loss
A functional MRI study showed how two regions of the brain affected by Alzheimer’s disease—the hippocampus and medial parietal lobes—cooperate to form new memories and gave researchers a look at what goes wrong during aging-related memory loss. Functional imaging can help researchers understand whether the presence of amyloid is the beginning of Alzheimer’s and whether intervention should occur at that early point. 
*Proceedings of the National Academy of Sciences* online (Print: February 12, 2008;105(6):2181–2186.)

February

Phase II Trial of Huperzine A in Alzheimer’s Disease Fails
A phase II clinical trial of Huperzine A in individuals with mild-to-moderate Alzheimer’s disease did not meet its primary endpoint. The results showed no statistical difference in the mean change on the Alzheimer’s Disease Assessment Scale-Cognitive scores scale, the primary endpoint of the study, after 16 weeks’ treatment with 200 micrograms of Huperzine A compared with placebo. 
*RTTNews*

Discipline and Alzheimer’s Disease
People who have a tendency to be self-disciplined, careful and purposeful appear less likely to develop Alzheimer’s disease. Research suggested that conscientious people may be more likely to be successful academically and in their professions, both of which have been associated with a reduced risk of Alzheimer’s disease. 

Antioxidant Vitamin Supplement Use and Risk of Alzheimer’s
Supplemental vitamin E and C, used alone or in combination, did not reduce the risk of Alzheimer’s disease or overall dementia during 5.5 years of follow-up. Evidence from several large, randomized control trials suggests that antioxidant supplementation does not maintain cognitive performance in cognitively intact individuals or delay Alzheimer’s in those with mild cognitive impairment. 

Folate Deficiency Associated with Tripling of Dementia Risk
Folate deficiency is associated with a tripling of the risk of developing dementia among elderly people, said researchers. The onset of dementia was significantly more likely in those whose folate levels decreased over two years while their homocysteine levels rose. People who were folate deficient at the beginning of the study were almost 3.5 times more likely to develop dementia than those who were not. 
*Journal of Neurology, Neurosurgery and Psychiatry* online (Print: August 2008;79:864–868.)
Intranasal Insulin Improves Memory in Early Alzheimer’s Disease
Daily intranasal insulin treatment improves cognition and functional status in individuals with early Alzheimer’s disease and amnestic mild cognitive impairment, results of a pilot study showed. Insulin is a key neuromodulator in the central nervous system, but levels of insulin and its signaling molecules are reduced in the central nervous system of those with Alzheimer’s disease. Researchers theorized that achieving normalized brain insulin levels would help restore brain function.


Alzheimer’s Plaques Can Form in One Day
An advanced imaging study has captured the fact that amyloid plaques, harbingers of Alzheimer’s disease, can develop in just 24 hours. The studies showed that nerve cell changes associated with Alzheimer’s disease appear within days after the formation of plaques.


Those with Mild Alzheimer’s Disease Show Rapid Decline in Financial Skills
Research showed that those with mild Alzheimer’s disease experience a dramatic decline over a one-year period in their ability to make financial decisions. This is accompanied by declines in basic judgment and monetary calculation skills. The findings underscore the importance of financial planning and transfer of financial responsibilities soon after diagnosis.

*American Journal of Geriatric Psychiatry* online (Print: August 2008;16(8):650–659.)

Most are Unaware of Heart Health, Dementia Link
A survey conducted by the Alzheimer’s Association and the American Heart Association of more than 2,000 people nationwide, including 1,210 African-Americans, showed most don’t know about the connection between cardiovascular conditions and the risk for dementia. Only 8 percent of African-Americans surveyed realized that cardiovascular conditions put them at an elevated risk of dementia.

*USA Today,* February 11, 2008 (http://www.alz.org/news_and_events_12875.asp)

Protein May Protect Against Alzheimer’s Disease
Scientists reported that the protein transthyretin (TTR) could be a natural defense against Alzheimer’s disease in humans and that this defense diminishes as people age. The findings suggest that TTR binds beta-amyloid in a manner that prevents both toxicity and plaque formation, presumably by interfering with the aggregation of the kinds of beta-amyloid that are most likely to stick together and cause neurological and behavioral deficits in experimental mice. If so, TTR-based therapy might help treat or prevent Alzheimer’s.

*Proceedings of the National Academy of Sciences* online (Print: February 19, 2008;105(7):2681–2686.)
Scientists Develop Tool to Probe Role of Oxidative Stress in Aging and Disease

University of Michigan researchers reported a new method to observe how oxidative stress affects the major building blocks of a cell: proteins. The new technique, called OxICAT, enables measurement of the oxidative state of thousands of different proteins in a single experiment. Such insights might lead to the development of anti-oxidant strategies for combating Alzheimer’s.

Proceedings of the National Academy of Sciences, online (Print: June 17, 2008;105(24):8197–8202.)

Evidence Found for Genes that Affect Risk of Developing Alzheimer’s Disease

Through one of the largest familial studies yet of Alzheimer’s disease, researchers found strong evidence that genes other than the well-known susceptibility risk factor gene APOE-e4 influence who is at risk for developing Alzheimer’s later in life. Studying 25 multigenerational families of individuals diagnosed with late-onset Alzheimer’s disease (LOAD), as well as hundreds of other participants, the researchers found that blood levels of beta-amyloid proteins associated with Alzheimer’s were significantly elevated in blood relatives of those with Alzheimer’s compared with protein levels in non-blood relatives such as spouses. These results suggest that genetic factors lead to significant elevations of beta-amyloid in the blood of asymptomatic, young individuals from extended LOAD families.


Memory Loss Declining Among U.S. Seniors

Older Americans are having less trouble with their memories, according to one study, and it may be because they spent more time in school. Researchers found the rate of cognitive impairment—which includes a range of ills from significant memory loss to Alzheimer’s disease—fell 3.5 percentage points among people 70 and over between 1993 and 2002. The research reinforces other studies that suggest people who do mentally challenging tasks early on build up a reserve of brain power that helps them withstand later injuries to the brain.


Beta-Amyloid Levels in Plasma Predict Alzheimer’s Disease Risk in Elderly Men

Levels of beta-amyloid protein in plasma predict the risk of Alzheimer’s disease in elderly men, said a group of researchers. Low plasma beta-amyloid 1-40 levels in 77-year-old men were associated with a higher incidence of Alzheimer’s.


Cancer-Related Protein May Play Key Role in Alzheimer’s Disease

Researchers reported that increased amounts of the cancer-related protein Akt may prevent the removal of abnormal proteins, such as tau, causing them to accumulate and disrupt cells. Accumulated tau forms the bundles of tangled nerve cell fibers in the brain that are associated with Alzheimer’s disease. Regulating Akt levels may prove beneficial in treating Alzheimer’s. This research was funded in part by the Alzheimer’s Association.

Proceedings of the National Academy of Sciences online (Print: March 4, 2008;105(9):3622–3627.)
22

Computers May Offer Breakthrough in Alzheimer Diagnosis

Computer software can diagnose Alzheimer’s disease from brain scans more reliably than clinical experts, according to one study. The software studied learned the difference between the MRI brain scans of those with Alzheimer’s and those without the disease and had an accuracy rate as high as 96 percent. *Brain*, March 2008;131(3):681–689.

25

Antibiotics Frequently Given to Individuals with Advanced Dementia

A study found that people with advanced dementia are frequently given antibiotics toward the end of life. The study raises the question of whether this practice should be curtailed in view of the increased risk of individuals developing drug-resistant superbugs. Those with advanced dementia who are living in nursing homes are at high risk of infections and antimicrobial exposure near the end of life. Researchers suggest that the implications of this practice be evaluated with respect to individual treatment burden near the end of life and its contribution to the emergence of antimicrobial resistance in nursing homes. *Archives of Internal Medicine*, April 2008;168(4):357–362.

27

Role for Ginkgo Biloba in Memory Decline is Unclear

Taking the supplement ginkgo biloba had no clear-cut benefit in reducing the risk of memory problems, according to a study. Although data suggested a trend favoring ginkgo, the difference between those who took ginkgo versus placebo was not statistically significant. Further studies are needed to determine whether ginkgo biloba has any benefits in preventing cognitive decline and whether it is safe. *Neurology* online (Print: May 6, 2008(19);70:1809–1817.)

28

Immunoglobulin Treatment is Associated with a Reduced Risk of Alzheimer’s Disease

The risk of developing Alzheimer’s disease may be reduced by about 40 percent in those previously treated with intravenous immunoglobulin (IVIg). IVIg—an antibody product derived from human plasma and FDA-approved to treat other conditions, but not Alzheimer’s—has been found to contain antibodies that bind to beta-amyloid proteins. Earlier clinical studies evaluating IVIg in individuals with Alzheimer’s suggested that it may improve cognitive function. *10th International Hong Kong/Springfield Pan-Asian Symposium on Advances in Alzheimer Therapy*

March

5

Dementia Diagnosis Brings Relief, Not Depression

A study found that 69 percent of those who eventually received a diagnosis of Alzheimer’s disease had no significant changes in depression and that anxiety among individuals with Alzheimer’s and their caregivers decreased substantially. “The major finding is that both patients and their families feel relief, not increased anxiety, upon learning the diagnosis,” said the study author. *Journal of the American Geriatrics Society*, March 2008;56(3):405–412.
7
FDG-PET Imaging May Lead To Earlier Diagnosis of Dementia
Researchers involved in a large, multi-institutional study using PET imaging with the radiotracer fluoro-deoxyglucose (FDG) classified different types of dementia with high rates of success, raising hopes that dementia diagnoses may one day be made at earlier stages. The overall accuracy among dementias was 96 percent.

10
Having Two Parents with Alzheimer’s Further Raises Child’s Risk
If both parents have Alzheimer’s disease, their children face an increased risk of developing the condition, a new study suggests. Forty-two percent of offspring whose parents both had Alzheimer’s went on to develop the disease themselves by age 70, researchers found. Having one parent with Alzheimer’s increases one’s risk of developing the disease, but having two parents with the disease increases it even further. The risk is greater of developing the disease early if additional relatives have Alzheimer’s disease, researchers said.

12
Study Confirms Role for PET-PiB
A study conducted by University of Pittsburgh researchers confirms that Pittsburgh compound-B (PiB) binds to the telltale beta-amyloid deposits found in the brains of individuals with Alzheimer’s disease. The finding is a significant step toward enabling clinicians to provide a definitive diagnosis of Alzheimer’s disease in living individuals. PiB is a radioactive compound injected into the bloodstream that, when coupled with positron emission tomography (PET) imaging, can enable researchers to identify the location and distribution of the beta-amyloid plaque deposits associated with Alzheimer’s.
*Brain* online (Print: June 2008;131(6):1630–1645.)

13
Link Between Alzheimer’s and Stroke Illuminated
Although scientists have known that the risk of Alzheimer’s disease is nearly doubled among people who have had a stroke, the source of the relationship has been obscure. Now researchers have found that the production of beta-amyloid, a hallmark of Alzheimer’s, increases after a stroke.

25
Explanation Proposed for Diabetes-Alzheimer’s Link
Individuals with diabetes have a significantly higher risk of developing Alzheimer’s disease but the molecular connection between the two has remained unexplained. However, investigators exploring the link reported that blood vessels in the brains of young diabetic mice are damaged by the interaction of elevated blood glucose levels characteristic of diabetes and low blood levels of beta-amyloid, a protein that clumps to form the senile plaques that riddle the brains of individuals with Alzheimer’s.
*Neurobiology of Aging*, online only
26

Larger Belly in Mid-Life Increases Risk of Dementia
People with larger bellies in their 40s are more likely to have dementia when they reach their 70s. A study found that those with the highest amount of abdominal fat were nearly three times more likely to develop dementia than those with the lowest amount of abdominal fat.

*Neurology* online (Print: September 30, 2008;71(14):1057–1064.)

Brain Imaging Model Distinguishes Alzheimer’s Disease from Other Types of Dementia
A computer-assisted imaging technique that measures sugar metabolism in a critical area of the brain could hold a key to the early diagnosis of Alzheimer’s disease and other dementias. Researchers say that the technique was 94 percent accurate in distinguishing Alzheimer’s disease from other dementias.


April

1

Whites with Alzheimer’s Disease Fare Worse
Whites with Alzheimer’s disease die sooner than their African-American and Latino counterparts, according to data obtained from more than 30 U.S. Alzheimer’s Disease Centers. Reasons for this difference may include disease management, genetic factors and cultural factors. During an average follow-up of about 2-1/2 years, 41 percent of whites died. Native Americans had the next highest mortality rate at 38 percent, followed by African-Americans at 30 percent, Latinos at 21 percent and Asians at 17 percent.


2

Antipsychotic Drugs of Little Benefit to Those with Alzheimer’s
The continued use of antipsychotic drugs provides no cognitive or neuropsychiatric benefit for individuals with Alzheimer’s, a British study concluded. Study participants were divided into two groups—one continued treatment with the drugs, while the other group stopped treatment. Individuals were assessed six and 12 months later, and the researchers found no differences between the two groups in terms of cognitive decline or the number of neuropsychiatric problems.


8

Depression Increases Risk of Alzheimer’s Disease
People who have been diagnosed with depression are 2.5 times more likely to develop Alzheimer’s disease than people who have never had depression, according to researchers. Those who experienced depression before age 60 were nearly four times more likely to develop Alzheimer’s than those with no depression.

Diabetes in Mid-Life Linked to Increased Risk of Alzheimer’s Disease
Men who develop diabetes in mid-life appear to have a significantly increased risk of developing Alzheimer’s disease, said researchers. They found that the men with low insulin levels at age 50 were nearly one-and-a-half times more likely to develop Alzheimer’s disease than those without reduced insulin levels. The risk remained significant regardless of blood pressure, cholesterol, body mass index and education.

*Neurology* online (Print: September 30, 2008;71(14):1065–1071.)

How Beta-Amyloid Accumulates in Alzheimer’s Disease
Researchers have identified a key mechanism by which beta-amyloid accumulates in Alzheimer’s disease. Researchers showed that endocytosis—the process by which the outer membrane of a cell folds inward toward the cell center and enables material outside the cell to enter the cell—transports amyloid precursor protein into the cell, where it could go on to be cleaved by beta- and gamma-secretase to create the beta-amyloid that is a hallmark of Alzheimer’s. When researchers inhibited endocytosis in the brain cells of mice, beta-amyloid levels decreased. These findings have implications for the brain changes associated with Alzheimer’s and may provide insights into potential therapies to intervene in the development of Alzheimer’s.


Most Early-Onset Dementia Not Alzheimer’s
The root cause of early-onset dementia is usually not Alzheimer’s, but rather another neurodegenerative or autoimmune disorder, research suggested. Among individuals younger than 45, dementia is more likely related to conditions such as multiple sclerosis, Huntington’s, lupus or HIV infection.

*American Academy of Neurology Annual Meeting*

High Doses of Vitamin E Associated with Longer Life in Individuals with Alzheimer’s
People with Alzheimer’s who consume very high levels of vitamin E seem to live longer than those who do not, research suggested. Researchers found that those who consumed 2,000 international units of vitamin E daily lived 26 percent longer than those who did not.

*American Academy of Neurology Annual Meeting*

Exercise Could Cut Risk of Mild Cognitive Impairment
Regular physical exercise may help protect against mild cognitive impairment, according to a Mayo Clinic study. Moderate physical exercise between ages 50 and 65 was associated with a reduced risk of cognitive impairment. Researchers speculate that exercise may stimulate chemicals that protect brain cells or that exercise is a marker for an overall healthy lifestyle.

*American Academy of Neurology Annual Meeting*
Results from Largest Statin Study of Individuals with Alzheimer’s Disease Show Lipitor Has No Significant Impact on Disease
In a study of those with mild-to-moderate Alzheimer’s disease, the addition of Lipitor® to Aricept® resulted in no significant differences in cognition or overall function compared with placebo and Aricept. American Academy of Neurology Annual Meeting

Antipsychotic Drugs Increase Risk of Developing Pneumonia in Elderly, Study Suggests
Elderly individuals who use antipsychotic drugs have a 60 percent increased risk of developing pneumonia compared with non-users, said researchers. This risk is highest in the first week after beginning antipsychotic drugs and decreases gradually thereafter. Antipsychotic drugs are frequently given to treat behavioral problems associated with dementia. Journal of the American Geriatrics Society, April 2008;56(4):661–666.

Dimebon Significantly Improves Thinking and Memory in Individuals with Alzheimer’s
Those with Alzheimer’s disease who were treated with the investigational drug Dimebon showed improvement in key aspects of cognitive function over one year compared with individuals receiving placebo. Improvements occurred not only in memory and language, but also in functions such as awareness of time and place and praxis—the process of getting an idea and initiating and completing a new motor task. American Academy of Neurology Annual Meeting

Smoking, Drinking and Alzheimer’s Risk
Researchers reported that people who have more than two drinks per day developed Alzheimer’s disease almost five years earlier than lighter drinkers, on average. Heavy smokers (a pack of cigarettes or more per day) developed it 2–3 years earlier. Both smoking and drinking can damage cells and synapses in the brain, explained the researchers. American Academy of Neurology Annual Meeting

Cognitive Abilities Ease Impact of Alzheimer Pathology
Mental processing resources, such as perceptual speed and working memory, can reduce the effect of Alzheimer pathology on other cognitive abilities. Results of one study showed that people with stronger processing resources performed better in other cognitive areas despite the burden of Alzheimer pathology. Neurology, April 22, 2008;70(17):1534–1542.

Study Sheds New Light on Alzheimer’s Development
Scientists found a molecular link between Alzheimer’s disease and the development of beta-amyloid plaques. Researchers studied microRNAs (miR), short pieces of RNA that regulate protein production. Those with increased levels of the protein beta-secretase had significantly reduced levels of miR-29a and miR-29b-1. Beta-secretase plays a key role in the production of the beta-amyloid protein that is a hallmark of Alzheimer’s. The loss of specific miRNAs may contribute to increased levels of beta-secretase and beta-amyloid in late-onset Alzheimer’s, said scientists. Proceedings of the National Academy of Sciences online (Print: April 29, 2008;105(17):6415-6420.)
30

**Experimental Drug Eases Symptoms of Mild Alzheimer’s**

A British study concluded that people with mild Alzheimer’s disease who took 800 milligrams of the drug tarenflurbil (Flurizan®) twice a day had less decline in functional ability than those who took a placebo. Those with mild Alzheimer’s who received the drug experienced a 46 percent slower decline in performing daily activities and a 36 percent slower decline in overall function after a year of treatment compared with those receiving a placebo. However, there was no significant effect on cognition. Tarenflurbil reduces production of beta-amyloid 1-42, which may initiate the brain damage characteristic of Alzheimer’s disease.

*The Lancet Neurology* online (Print: June 2008;7(6):483–493.)

**Cortical Thickness Reflects Network Connectivity in Alzheimer’s**

Building on earlier research suggesting that the thickness of the cerebral cortex (the gray matter that forms the outermost layer of the cerebrum) is similar in regions of the brain that function together (are functionally correlated), researchers suggest that these cortical similarities change when functional ability changes in conditions such as Alzheimer’s. The result is mismatched cortical thickness between regions that normally have similar thicknesses. Changes in thickness correlations throughout the cortex, which may occur in Alzheimer’s, could make the brain’s communication network vulnerable to disruption.

*Journal of Neuroscience,* April 30, 2008;28(18):4756–4766.

**Families Shed Light on Possible Causative Gene for Alzheimer’s**

The genetic profile of two large Georgia families with high rates of late-onset Alzheimer’s disease points to a gene that may cause the disease, researchers said. Genetic variations called single nucleotide polymorphisms, or SNPs, are common in DNA, but a particular pattern of SNPs was found in nine of 10 affected family members in the study. The genetic variation was in the TRPC4AP gene, part of a large family of genes that is believed to regulate calcium. Calcium is needed throughout the body but abnormal regulation of calcium levels can result in inflammation, nerve cell death and possibly plaque formation. The finding provides new directions for research and possibly new treatment targets.

*American Journal of Medical Genetics* online (Print: January 2009;150B(1):50–55.)

May

1

**Risk Factors for Progression from Mild Cognitive Impairment to Alzheimer’s Disease May Be Gender-Specific**

French researchers reported that men and women have different risk profiles for progression from mild cognitive impairment to Alzheimer’s disease. The principal factors for men in descending order were APOE-e4 allele, stroke, low level of education, difficulty in carrying out instrumental activities of daily living and age. In women, the principal risk factors were difficulties in instrumental activities of daily living, APOE-e4 allele, low level of education, subclinical depression, use of anticholinergic drugs and age.

Ibuprofen May Be Linked to Reduced Alzheimer’s Risk
People who use the painkiller ibuprofen regularly for five years may be less likely to develop Alzheimer’s disease as they age, a study suggested. People who used nonsteroidal anti-inflammatory drugs (NSAIDs) long-term had a 25 percent lower risk of developing Alzheimer’s. The benefit was more pronounced with specific NSAIDs. The risk of developing Alzheimer’s decreased the longer a person used ibuprofen, with those using the drug for five years being more than 40 percent less likely to develop the disease. But the findings don’t put to rest a debate about the preventive or therapeutic role for NSAIDs, which are associated with gastrointestinal side effects when taken long-term.

Neurology, May 6, 2008(19);70:1672–1677.

Beta-Amyloid Levels in Plasma Fail to Predict Alzheimer’s Disease
Levels of two beta-amyloid proteins—beta-amyloid 1-40 and beta-amyloid 1-42, both of which are important components of senile plaque—in plasma do not appear to be useful biomarkers for development of Alzheimer’s disease, according to one study. Investigators found no significant association between elevated plasma levels of beta-amyloid and Alzheimer’s disease.


Obesity Linked to Increased Risk of Dementia
Obesity can increase the risk of Alzheimer’s disease by up to 80 percent and vascular dementia by 73 percent, researchers found. Experts do not know exactly why obesity impacts on the risk of dementia, although the high blood pressure that is associated with obesity is thought to play a role.

Obesity Reviews, May 2008;9(3)204–218.

Flavonoids Reduce Beta-Amyloid Levels in Mouse Model of Alzheimer’s
Flavonoids, compounds found in many fruits and vegetables, may lessen the brain changes of Alzheimer’s disease, said researchers. In experiments with mice, flavonoids called luteolin and diosmin reduced levels of beta-amyloid, which forms the plaques that build up in the brains of those with Alzheimer’s disease.

Journal of Cellular and Molecular Medicine online (Print: March 2009;13(3):574–588.)

Older Persons with More Schooling Spend Fewer Years with Cognitive Loss
Those with at least a high school education live 2.5 years more without cognitive loss—including the effects of Alzheimer’s, Parkinson’s and dementia—but die sooner after the loss becomes apparent than those without a high school education.

14

**Study Shows No Benefit of DHEA in Cognitive Function**

A study including 110 healthy men and 115 healthy women aged 55–85 who received either daily 50 mg doses of DHEA or a placebo for one year found no evidence of a beneficial effect of DHEA supplements on cognitive function. Six cognitive function tests were administered at the beginning of the study and after 12 months. The lead author of the study concluded that DHEA supplements had no cognitive benefits in this study group.

*Journal of the American Geriatrics Society* online (Print: July 2008;56(7):1292–1298.)

**Heart Surgery Not Linked to Cognitive Decline**

People who’ve undergone coronary bypass surgery are sometimes noted to have some degree of mental impairment later on, but researchers reported that the surgery is not to blame. They found that the cognitive decline in such individuals is comparable to that in those with heart disease who have not undergone surgery. Individuals with coronary artery disease may also have some degree of vascular disease involving the brain, and this, in combination with normal age-related changes, may explain the mild late cognitive changes.


**Molecule Stops Formation of Fibers Associated with Alzheimer’s**

In test tube studies, the addition of the small molecule 4,5-dianilinophthalimide (DAPH) to a solution containing beta-amyloid fibers caused the fibers to stop growing. Abnormal beta-amyloid fibers are associated with Alzheimer’s disease. These results suggest that finding a way to stop the misfolding of proteins that leads to fiber formation may be one approach to developing new treatments for Alzheimer’s. This research was funded in part by the Alzheimer’s Association.

*Proceedings of the National Academy of Sciences* online (Print: May 20, 2008;105:7159–7164.)

**June**

1

**Yale Researchers Clear up Alzheimer Plaques in Mice**

Blocking a common immune system molecule, TGF-β (transforming growth factor), cleared up plaques associated with Alzheimer’s disease and enabled treated mice to recover some lost memory, Yale University researchers reported. The research team found that as much as 90 percent of plaque formation was prevented in the brains of mice. This research was funded in part by the Alzheimer’s Association.


2

**Antipsychotics May Improve Psychiatric Symptoms in Alzheimer’s Disease**

Psychiatric and behavioral symptoms associated with Alzheimer’s disease, such as anger, agitation, aggression and paranoid thoughts and ideas, may improve with the use of second-generation antipsychotic medications, a study found. Improvements were seen both in global measures and in measures of specific symptoms. In addition, the analysis indicated that particular symptoms may respond better to different second-generation antipsychotic medications.

*The American Journal of Psychiatry* online (Print: July 2008;165(7):844–854.)
4

Exercise May Cut Risk of Dementia
Exercising in middle age may help ward off dementia and Alzheimer’s disease decades later. In a study of more than 1,400 adults, those who were physically active during middle age were 52 percent less likely to develop dementia 21 years later than their sedentary counterparts. Their chance of developing Alzheimer’s disease was slashed even more, by 62 percent.

American College of Sports Medicine Annual Meeting

12

Apolipoprotein E Facilitates Beta-Amyloid Clearance from the Brain
Researchers reported that apolipoprotein E (APOE) helps remove soluble beta-amyloid from the brain, increases the breakdown of beta-amyloid in microglia and facilitates the breakdown of beta-amyloid by insulin-degrading enzyme. They also found that enhanced expression of a certain form of APOE through activation of liver X receptors stimulated the breakdown of beta-amyloid.


18

Grape Seed Extract Reduces Plaque Formation in an Animal Study
To explore the potential role of compounds known as polyphenols in the treatment of Alzheimer’s disease, researchers gave the compounds to mice genetically altered to develop Alzheimer’s disease. The mice received polyphenols, which are found in grape seed extract, before they showed symptoms of Alzheimer’s. After five months, when these mice typically show Alzheimer symptoms, the treated mice showed reduced cognitive decline compared with nontreated mice, as well as reduced beta-amyloid accumulation and plaque formation. Additional research is needed to learn whether the same effects would be found in humans. This research was funded in part by the Alzheimer’s Association.


30

Flurizan Fails in Key Study

Reuters

Presenilins Linked to Calcium Activity in Neurons
The cell membrane proteins called presenilins may help maintain neuronal health by regulating the activity of a key calcium pump in cells, reported researchers. These data support the idea that calcium mismanagement in neurons can influence the development of physical changes in the brain that are associated with Alzheimer’s.

July

1 Questionnaire Spots Alzheimer’s Risk
A new questionnaire may help in both diagnosing older adults with dementia and in identifying individuals who need help with daily living. The Everyday Cognition instrument consists of 39 questions to be answered by people who are very familiar with the abilities of the person with memory or function loss. The hope is that this instrument will be able to help identify very early on those people at increased risk for developing Alzheimer’s disease.


Anti-inflammatory Drugs Do Not Improve Cognitive Function in Older Adults
Researchers reported that the anti-inflammatory drugs naproxen and celecoxib do not appear to improve cognitive function in older adults with a family history of Alzheimer’s disease, and naproxen may have a slightly detrimental effect.


2 Are Men or Women More Likely to Have Dementia in Very Old Age?
In a population-based study of 911 men and women aged 90 and older, researchers found that the overall prevalence of dementia from all causes was higher in women than men. Prevalence increased with age after age 90, essentially doubling every 5 years, for women, but not for men. A lower prevalence of dementia was significantly associated with higher education in women but not in men.


‘Good’ Cholesterol May Lower Dementia Risk
Too little of one type of cholesterol has been linked by research to memory loss and Alzheimer’s disease. The relationship between levels of HDL, or “good,” and LDL, or “bad,” types of cholesterol is thought to be important in the development of other serious conditions such as heart disease and stroke. Higher levels of HDL, in particular, are believed to protect against damage to the blood supply caused by the narrowing of the arteries. Evidence also shows that “good” cholesterol can influence the laying down of the beta-amyloid plaques that are a distinctive feature in the brains of those with Alzheimer’s.


10 Imaging Technique May Spot Early Alzheimer’s
An automated system for measuring hippocampal volume with magnetic resonance imaging (MRI) can help doctors more accurately diagnose Alzheimer’s disease at an earlier stage, according to researchers. The automated process performed as well as the manual process and is much faster. Combined with other tests, the new automated MRI technique can contribute to a more accurate diagnosis of Alzheimer’s disease.

New Cut Point Detects Dementia Risk Among Highly Educated Older Adults
A different cutoff point on an existing mental function assessment—the mini-mental state examination—may more effectively assess the risk of dementia in highly educated older adults, according to a new study. The authors suggest that using this cut point may help facilitate early detection of dementia in highly educated individuals.

_Archives of Neurology, 2008;65(7):963–967._

11

Biological Marker for Alzheimer’s Holds Promise for Earlier Diagnosis
Researchers found evidence that increases in the size of the brain ventricles are directly associated with cognitive impairment and Alzheimer’s disease. The research showed that the volume of the brain ventricles expands as surrounding tissue dies.

_Brain online (Print: September 2008;131(9):2443–2454.)_

15

Exercise May Prevent Brain Shrinkage in Early Alzheimer’s Disease
People with early-stage Alzheimer’s disease who were less physically fit had four times more brain shrinkage compared with normal older adults than those who were more physically fit, suggesting less brain shrinkage occurs in Alzheimer’s among those with higher fitness levels.

_Neurology, July 15, 2008(3);71:210–216._

19

Plaque Vaccine Doesn’t Slow Alzheimer’s
The vaccine AN-1792, aimed at reducing beta-amyloid plaques in the brain, didn’t stave off Alzheimer’s disease, undercutting the theory that beta-amyloid plaques are the driving force of the debilitating disease. While immunization with beta-amyloid cleared the plaques, it didn’t help individuals live longer or slow the disease’s progression.

_Lancet, July 19, 2008;372(9634):216–223._

Biomarkers Identify Alzheimer’s Before Symptoms Appear
Researchers found that during Alzheimer’s earliest stages, levels of specific proteins in the blood and spinal fluid begin to drop as the disease progresses, making them potentially useful as biomarkers to identify and track progression of Alzheimer’s long before symptoms appear. Identifying individuals at this silent stage is critical to developing treatments to prevent symptoms from appearing.

_Neurology, July 8, 2008;71(2):85–92._

26

Using Multiple Imaging Methods Proves Valuable in Assessing Cognitive Function
Two Mayo Clinic studies found that imaging methods including magnetic resonance imaging, magnetic resonance spectroscopy, and positron emission tomography with 11C Pittsburgh Compound B each provide independently valuable information about cognitive function. By using all of these imaging methods together, the researchers say physicians can better predict the likelihood of an individual’s developing Alzheimer’s disease.

_Alzheimer’s Association International Conference on Alzheimer’s Disease_
Drug Boosts Memory in Individuals with Mild Cognitive Impairment
A nasal spray made by Allon Therapeutics Inc. significantly improved some measures of memory in people with mild cognitive impairment, a potential precursor to Alzheimer's disease. The drug, AL-108, was among the first of a new class of Alzheimer’s treatments to target the fibrous tangles in the brain caused by an abnormal build-up of the protein tau.

Dual Diabetes Drugs Help Stave Off Alzheimer’s
People with adult-onset diabetes who take insulin plus a diabetes pill have a lower risk of developing Alzheimer’s disease than diabetics who take insulin alone, reported researchers. Those who were treated with both insulin and a diabetes pill had 80 percent fewer beta-amyloid plaques than those not receiving dual treatment. Beta-amyloid plaques are a characteristic feature of Alzheimer’s disease. The finding may help lower the risk of Alzheimer’s disease in individuals with diabetes.

Drug Improves Brain Function and Reduces Levels of a Key Alzheimer Protein
The drug PBT2 was shown to improve the brain function of people with early-stage Alzheimer’s disease and reduce levels of a key protein in spinal fluid that is associated with the disease. The drug counteracts the production and accumulation of the protein beta-amyloid that occurs in Alzheimer’s disease. This protein, which clumps together to form plaques, is believed to be toxic to brain cells and to prevent them from functioning properly.

Biomarkers May Help Spot, Track Alzheimer’s
Results of several studies suggested the potential of biomarkers to identify and track Alzheimer’s disease. One study found that differences in levels of CD-69, a protein involved in white blood cell growth and production, distinguish between people with Alzheimer’s, people with Parkinson’s-related dementia and those who were cognitively normal. A second study confirmed previous findings: the more beta-amyloid 1-42 in the brain (as measured by PET scans), the less beta-amyloid 1-42 in cerebrospinal fluid. Another study found that individuals with mild cognitive impairment had elevated levels of beta-secretase activity in the brain compared both with healthy people and people with Alzheimer’s. A fourth study showed that the radioactive tracer compound 18F-AV-45 may have a potential role in the diagnosis and early detection of Alzheimer’s when used with PET scans.

Bapineuzumab Results Are Mixed
Bapineuzumab, an experimental Alzheimer drug, was linked to brain-swelling in a study that showed no benefit of the drug for volunteers with the APOE-e4 gene. However, the treatment slowed memory loss better than existing treatments for volunteers without the gene.
Family History May Add to Alzheimer’s Puzzle
A Duke University Medical Center-led study was one of only a few to examine the role of both APOE and family history combined in developing Alzheimer’s disease. In the study, people who experienced the most significant cognitive decline had a family history of the disease and one or more copies of the APOE-e4 gene. Researchers learned that APOE genotype does not tell the entire genetic story. Other genes may act independently of APOE to influence an individual’s risk for developing the disease.

Experimental Alzheimer’s Drug Shows Early Promise
An experimental drug called Rember® showed promise for halting the progression of Alzheimer’s disease by breaking up tangles made of the protein tau that occur in the brain cells of those with Alzheimer’s disease. The drug improved key measures of thinking and memory in people with Alzheimer’s disease.

Mild Cognitive Impairment More Common Than Expected
The rate of new cases of mild cognitive impairment in those over 70 is higher than previously expected, results from the Mayo Clinic Study of Aging show. Initially healthy participants developed mild cognitive impairment at a rate of 5.3 percent per year, two to three times higher than the rate of new cases of dementia in the same population.

Drink Based on MIT Work Does Well in First Human Tests
The nutrient-rich drink Souvenaid® may offer a new option in the management of those with mild Alzheimer’s disease. The investigators found a statistically significant benefit on the delayed verbal memory task in people with mild Alzheimer’s who consumed Souvenaid. Research at MIT showed that specific combinations of certain nutrients interact to enhance synapse formation and improve cognitive function in preclinical models.

Detecting Mild Cognitive Impairment and Its Transition to Alzheimer’s Disease
Scientists reported advances in understanding mild cognitive impairment (MCI) and its transition to Alzheimer’s. In one study, researchers identified abnormal structural changes in the brains of seemingly normal elderly that indicated MCI. They used a tool based on MRI images from the brains of people with Alzheimer’s disease to examine the MRI images of normal elderly and identify any remarkable structural changes. In a second study, researchers detected changes in cells that may help predict the transition from MCI to Alzheimer’s disease. Analyzing changes in levels of biomarkers in cerebrospinal fluid in people with MCI can predict the conversion to Alzheimer’s disease, especially when used in conjunction with neuroimaging and psychological tests, reported researchers.

Dementia in Developing Nations May Have Been Substantially Underestimated
Researchers concluded that the standard dementia criteria might substantially underestimate the true prevalence of dementia, especially in less developed regions, because of difficulties in defining and ascertaining decline in intellectual function and its consequences. Prevalence differences between developed and developing countries might not be as large as previously thought.

*Lancet* online (Print: August 9, 2008;372(9637):430–432.)
Statins May Protect Against Memory Loss
People at high risk for dementia who took cholesterol-lowering statins were half as likely to develop dementia as those who did not take statins, a study showed. The study did not look at statins as a treatment for existing dementia, only as a preventive treatment. *Neurology*, July 29, 2008;71(5):344–350.

Can Midlife Use of Hormones Reduce Dementia Risk?
Women who began hormone therapy at menopause had a 24 percent reduced risk for all forms of dementia, including Alzheimer’s disease, researchers reported. Women who started hormone therapy at a later age had up to a 46 percent increased risk of dementia. *Alzheimer's Association International Conference on Alzheimer's Disease*

Memantine May Slow Progression of Behavioral Symptoms in Alzheimer’s
Treatment with memantine may slow the progression of behavioral symptoms, including delusions, irritability, abnormal night-time behavior, appetite and eating changes, agitation and aggression, in Alzheimer’s disease, scientists reported. It may even prevent those symptoms from emerging, they added. *Alzheimer's Association International Conference on Alzheimer's Disease*

30

Being Single in Midlife Could Raise Risk for Dementia Later
A Scandinavian study found that unmarried middle-aged people are more likely to develop cognitive impairment than their partnered counterparts. Researchers studied 1,449 Finnish people who were questioned in midlife and then again in 1998, an average of 21 years later. Almost 10 percent of those in the study were diagnosed with some form of cognitive impairment in 1998; 48 had Alzheimer’s disease. Those who lived with a partner in midlife were less likely to be cognitively impaired than all others (including those who were widowed, single, divorced or separated). After researchers took into account the effects of factors such as weight, physical activity and education, those with partners still had a 50 percent lower risk of showing signs of senility in later life than those who lived alone. Those who stayed single their entire lives had double the risk of dementia, while those who were divorced from midlife onward had triple the risk. *Alzheimer's Association International Conference on Alzheimer's Disease*

Ruminating Could Protect the Brain
In a longitudinal study of 9,000 subjects, the tendency to ruminate appeared to decrease one’s risk of developing dementia. Dementia was assessed at the beginning of the study and three decades later in 1,890 participants among the 2,604 survivors of the original cohort. The prevalence rates of dementia were 21 percent for those who always forget difficulties in familial settings, 18 percent for those who tend to forget, 14 percent for those who tend to ruminate over difficulties, and 14 percent for those who usually ruminate. “One possible explanation could be that some forms of rumination may be associated with effective problem-solving and are a form of cognitive activity,” said one of the authors. “Cognitive activity has been demonstrated to be associated with decreased risk for dementia.” *Alzheimer's Association International Conference on Alzheimer's Disease*
Baxter Alzheimer’s Drug Effective in Nine-Month Study
People with Alzheimer’s disease who were treated with Gammagard for nine months maintained cognitive function and in some cases experienced an improvement in function, according to a small study. Gammagard, an intravenous therapy of antibodies derived from human plasma, is intended to attack the disease in two ways. The antibodies target the beta-amyloid proteins thought to disrupt brain function in Alzheimer’s. Gammagard also contains anti-inflammatory properties that may activate microglial cells to help dissolve amyloid deposits, or plaques.

*Alzheimer’s Association International Conference on Alzheimer’s Disease*

Moms with Alzheimer’s May Pass on Risk to Kids
People whose mothers had Alzheimer’s disease may be predisposed to the disease, a study found. The link may be a dysfunction in how the brain handles sugar—something that’s probably genetic and starts years before symptoms of Alzheimer’s appear, researchers say. The researchers found that people with a mother with Alzheimer’s had a much faster reduction in the use of glucose in areas of the brain affected by the disease compared with people who had a father with Alzheimer’s or parents without the disease.

*Alzheimer’s Association International Conference on Alzheimer’s Disease*

Antibody Affects Beta-Amyloid Protein
Results of a Phase II study of LY2062430, an investigational anti-amyloid beta monoclonal antibody for the treatment of mild-to-moderate Alzheimer’s disease, showed that the drug bound to beta-amyloid, resulting in increased amounts of beta-amyloid in participants’ blood and cerebrospinal fluid. These results suggest LY2062430 may begin to dissolve amyloid plaques in the brains of those with Alzheimer’s disease.

*Alzheimer’s Association International Conference on Alzheimer’s Disease*

Elevated Calcium Levels Near Plaques Can Disrupt Neuronal Function
Using an advanced imaging technique that reveals how brain cells are functioning, researchers find that levels of intracellular calcium are significantly elevated in neurons close to plaques in the brains of mice genetically altered to develop Alzheimer’s. The study also shows how this calcium overload can interfere with the transmission of neuronal signals and activate a pathway leading to further cell damage.


August

1

Inhibiting Calpain Restores Synaptic Function in Mouse Model of Alzheimer’s
Researchers report that inhibiting the action of the protein calpain restored synaptic function in mice genetically altered to develop Alzheimer’s. Calpains are calcium-activated enzymes that can initiate a chain of events that result in the breakdown of proteins essential to the survival of neurons. Techniques or agents that inhibit calpain may intervene in the pathological changes that occur in Alzheimer’s disease.

*Journal of Clinical Investigation*, August 1, 2008;118(8)2796–2807.
11

**PET Scans Help Detect Alzheimer Brain Plaques**

PET scans provide physicians with a noninvasive method of detecting Alzheimer's disease-related brain plaques, said scientists. In a small study of 10 volunteers, volunteers received injections of a marker called carbon 11 before undergoing a 90-minute PET scan. The results showed that volunteers with beta-amyloid plaques based on brain biopsies had a higher concentration of carbon 11 in certain areas of their brains than those who did not have these plaques. The study supports the use of [11C] PiB PET in the evaluation of beta-amyloid deposition in mild cognitive impairment, Alzheimer's disease and normal-pressure hydrocephalus.

*Archives of Neurology* online (Print: October 2008;65(10):1304–1309.)

12

**Physical Frailty Could Predict Alzheimer’s Disease**

Physical frailty among the elderly may be linked to early Alzheimer's disease, research revealed. The finding, based on brain autopsies of elderly individuals with Alzheimer's, raises the notion that physical frailty in the elderly is an early symptom of Alzheimer’s—one that appears before mental decline.

*Neurology,* August 12, 2008;71(7):499–504.

28

**Antipsychotic Drugs Boost Stroke Risk**

All antipsychotic drugs can increase the risk of stroke, but the risk is greatest among older people with dementia, British researchers reported. The researchers believe that the risks associated with antipsychotic use in those with dementia generally outweigh the potential benefits, and, in this group, use of antipsychotic drugs should be avoided wherever possible.

*British Medical Journal* online (Print: September 13, 2008;337:616–618.)

September

8

**A Blood Marker May Indicate Alzheimer’s Risk**

Levels of beta-amyloid 1-42 in the blood may allow doctors to detect an individual’s predisposition to developing the disease, reported researchers. This finding has the potential to influence the way that the disease is treated. The study showed that plasma levels of beta-amyloid 1-42 increase before the onset of Alzheimer’s disease and decline shortly after the onset of Alzheimer’s. Researchers found that people with elevated levels of beta-amyloid in their blood appear to be at increased risk of developing the disease, especially if those levels begin to decrease over time.

*Proceedings of the National Academy of Sciences* online (Print: September 16, 2008;105(37):14052–14057.)

13

**Brain Protein Linked to Alzheimer’s Disease**

Investigators announced a link between the brain protein KIBRA and Alzheimer’s disease, a discovery that could lead to new treatments. The discovery builds upon research showing a genetic link between KIBRA and memory in healthy adults. In the study, researchers found that carriers of a certain form of the KIBRA gene had a 25 percent lower risk of developing Alzheimer’s disease.

*Neurobiology of Aging* online only
23

**Benefit of Combination Therapy for Alzheimer’s Disease**

Extended treatment with Alzheimer’s disease drugs can significantly slow the rate at which the disorder advances, and therapy with two different classes of drugs is even better at helping individuals with Alzheimer’s maintain their ability to perform daily activities, said researchers.

*Alzheimer Disease and Associated Disorders, July/September 2008;22(3):209–221.*

26

**Active Social Life May Reduce Men’s Alzheimer Risk**

Cognitive and social activity in midlife may significantly reduce men’s risk of dementia, says a study that followed 147 male twin pairs for 28 years. Among the twins, higher cognitive activity scores predicted a 26 percent reduction in risk for developing dementia first. The study found that reduced dementia risk was most strongly associated with participation in intermediate novel activities such as home and family activities, visiting with friends and relatives, club activities (such as attending parties and playing card games), and home hobbies. Two other categories of cognitive activities—novel and passive/receptive—also reduced dementia risk but not to the same degree as intermediate novel activities. Novel activities include reading, studying for courses, and extra work (overtime or other employment), while passive/receptive activities include watching television, listening to radio, going to movies, or seeing theater, art and music shows.

*Alzheimer's Association International Conference on Alzheimer's Disease*

30

**Blood Protein Tied To Alzheimer’s Disease Risk**

Low levels of cystatin C—a protein found in blood that is commonly used as a measure of kidney function—may be a risk factor for Alzheimer’s disease in elderly men. According to researchers, a 0.1-mcmol/L decrease in cystatin C between ages 70 and 77 was associated with a 29 percent higher risk of developing Alzheimer’s disease.


October

15

**Vitamin B Supplementation Did Not Slow Cognitive Decline in Alzheimer Disease**

High-dose vitamin B supplementation in people with mild-to-moderate Alzheimer’s disease did not slow the rate of cognitive decline, according to an 18-month study of several hundred individuals.


23

**Cystatin C Influences Beta-Amyloid Levels**

Investigators reported that in a mouse model of Alzheimer’s disease the protein cystatin C increased beta-amyloid levels by inhibiting an enzyme that breaks down beta-amyloid. Cystatin C–free mice had significantly lower levels of soluble beta-amyloid, lower levels of beta-amyloid 1–42 and fewer beta-amyloid plaques overall. Cystatin C may prove to be a new target for intervening in the beta-amyloid accumulation associated with Alzheimer’s disease.

*Neuron, October 23, 2008;60(2):247–257.*
31

**Scientists Identify Molecule That Helps Make Memories**

Researchers identified a missing-link molecule, myosin Vb, that helps to explain the process of plasticity in the brain and could lead to targeted therapies for Alzheimer’s. The molecule moves new receptors to the synapse so that the neuron can respond more strongly to stimulation. This molecule may be part of a general delivery system in the brain and could have significance for all cell signaling.


**November**

1

**APOE Levels in CSF Correlate with Levels of Alzheimer Proteins**

A study of cognitively normal adults ages 21–88 years found that levels of APOE in cerebrospinal fluid were correlated with levels of amyloid precursor protein (APP) and tau, proteins associated with Alzheimer’s disease. The results suggest that modulation of APOE levels may increase or decrease levels of APP and tau in the brain.


3

**Counseling and Social Support for Alzheimer Caregivers Reduces Depression**

Symptoms of depression decreased among caregivers who received five sessions of individual and family counseling, while depression increased among those who did not receive counseling. The results provide evidence that a multi-component counseling and support program for caregivers can reduce depression.


5

**Vitamin B3 Reduces Alzheimer Symptoms, Lesions**

Researchers reported that nicotinamide, a form of vitamin B3, lowered levels of phosphorylated tau, a protein that leads to the development of tangles, one of two brain lesions associated with Alzheimer’s disease. The vitamin also strengthened the scaffolding along which information travels in brain cells, helping to keep neurons alive and further preventing symptoms in mice genetically altered to develop Alzheimer’s.


9

**Education Blunts Effects of Alzheimer’s**

Brain scans of people with the beta-amyloid plaques that are a hallmark of Alzheimer’s disease are strengthening the notion that greater education levels somehow protect against the effects of Alzheimer’s. People with more education performed better on memory and problem-solving tests than others with similar amounts of the brain plaques.

Reducing Activity of Brain Enzyme Preserves Memory in Alzheimer Mouse Model

An enzyme known to release neurotoxic fatty acids from lipids in the brain (group IVA phospholipase A2) was shown to be more active in humans with Alzheimer’s and in mice altered to develop the disease. Reducing the activity of this enzyme in mice prevented the memory problems they typically develop. Inhibiting the enzyme with a drug also blocked neurodegeneration caused by toxic beta-amyloid proteins in cultured brain cells. Group IVA phospholipase A2 may be a useful drug target for the treatment of Alzheimer’s disease.

*Nature Neuroscience* online (Print: November 2008;11(11):1311–1318.)

Scientists Uncover Mechanism Linked to Neurodegeneration and Alzheimer’s

A study shed light on the formation of large rod-shaped bodies that contribute to neurodegenerative injury and dysfunction. These rod-shaped bodies, which are made up of the protein actin (necessary for cell movement and division) and its key regulatory component, cofilin, appear in abundance in animal models of neurodegeneration. These bodies are especially abundant near beta-amyloid deposits and neurofibrillary tangles in Alzheimer’s disease. The study describes a key part of the process of forming actin/cofilin bodies that might be targeted in future Alzheimer therapies.


Anesthetic Isoflurane Associated with Increased Levels of Beta-Amyloid in Animal Models

Researchers reported that the commonly used anesthetic gas isoflurane was associated with increased amounts of the enzyme beta-secretase and the protein beta-amyloid in mouse models, substances that are present in elevated levels in humans with Alzheimer’s. Giving mice the drug clioquinol before administration of isoflurane decreased the aggregation of beta-amyloid. Much additional research is needed to learn whether these findings are applicable to humans receiving isoflurane. This research was funded in part by the Alzheimer’s Association.

*Annals of Neurology* online (Print: December 2008;64(6):618–627.)

Alzheimer’s Gene Slows Brain’s Ability to Export Toxic Protein

The APOE-e4 gene that is a risk factor for Alzheimer’s slows the brain’s ability to export the toxic protein beta-amyloid that is believed to be central to the damage caused by the disease, a study reported. The findings point to differences in the way beta-amyloid is removed from the brain depending on which APOE allele (e2, e3 or e4) is involved.

*Journal of Clinical Investigation* online (Print: December 1, 2008;118(12):4002–4013.)

Amyloid Deposits Found in More Than 20 Percent of Cognitively Normal Seniors

About one in five cognitively normal elderly people has signs of Alzheimer’s-related beta-amyloid plaques in the brain, which is about the same proportion as found in brains of deceased individuals who were diagnosed with Alzheimer’s disease. Researchers used PET-PIB imaging to detect areas of beta-amyloid deposits in healthy living volunteers. In the past, such plaque deposits could only be detected on autopsy. These findings have implications for preventive strategies and might lay the groundwork for predicting, before the onset of symptoms, who will develop Alzheimer’s.

*Archives of Neurology*, November 2008;65(11):1509–1517.
19

**Study Suggests Neuroprotective Role for Calpastatin**

Scientists report that decreased levels of the protein calpastatin may play a role in Alzheimer’s disease. Calpastatin inhibits the action of another protein, calpain, which is implicated in the synaptic dysfunction and neurodegeneration of Alzheimer’s. Agents that mimic the effects of calpastatin may help prevent the neuron damage associated with Alzheimer’s.


---

**December**

9

**Cholinesterase Inhibitors Reduce Behavioral Symptoms of Alzheimer’s Disease**

Cholinesterase inhibitors, used to treat cognitive symptoms of Alzheimer’s disease, may also be a safe and effective alternative therapy for the behavioral and psychological symptoms of dementia, said researchers. They reviewed nine randomized, double-blind, placebo-controlled clinical trials evaluating the effectiveness of three popular cholinesterase inhibitors in managing behavioral and psychological symptoms displayed in Alzheimer’s. The trial results indicated that cholinesterase inhibitors led to a statistically significant reduction in behavioral and psychological symptoms such as aggression, wandering or paranoia when using the same dosage as administered for improving cognitive impairment.


---

**MRI Scans Accurate in Early Diagnosis of Alzheimer’s Disease**

MRI scans that detect shrinkage in specific regions of the mid-brain attacked by Alzheimer’s disease accurately diagnose the neurodegenerative disease, even before symptoms interfere with daily function, a study found. The study adds to evidence that MRI scans are a valuable diagnostic tool for Alzheimer’s disease.


---

10

**A Special Type of Collagen May Help Protect the Brain from Alzheimer’s Disease**

A certain type of collagen, collagen VI, protects brain cells from beta-amyloid proteins, which are believed to contribute to the development of Alzheimer’s disease, said scientists. While the functions of collagens in cartilage and muscle are well established, before this study it was unknown that collagen VI is made by neurons in the brain and has a neuroprotective role.


---

**Enzyme Could Be a Target for New Treatments**

Scientists have found that neurons die when an enzyme called HDAC1 is blocked. HDAC1 is involved in the formation of chromatin, the structural component of chromosomes. This finding suggests a role for HDAC1 as a molecular link between abnormal cell-cycle activity and DNA damage. As a result, this enzyme could be a potential target for Alzheimer’s disease therapies.

Study Links Beta-Amyloid Deposition to Degeneration of Neurons
To better understand the potential role of beta-amyloid in Alzheimer’s disease, researchers examined whether progressive deposition of beta-amyloid in mice genetically altered to develop Alzheimer’s resulted in the degeneration of neurons. Researchers focused on specific neurons called monaminergic neurons. They found that progressive deposition of beta-amyloid in the forebrains of mice resulted in extensive loss of these neurons, supporting the theory of the pathologic role of beta-amyloid in Alzheimer’s disease.

Two Cardiovascular Proteins Tied to Severity of Alzheimer’s
Researchers found that the proteins myocardin and serum response factor lessen blood flow in the brain and reduce the rate at which the brain is able to remove the protein beta-amyloid. Beta-amyloid accumulates in damaging quantities in the brains of individuals with Alzheimer’s. The two proteins could prove an effective target for future Alzheimer treatments.
Nature Cell Biology online (Print: February 2009;11(2):143–153.)

Brain Starvation With Age May Trigger Alzheimer’s
When the brain has a deficient supply of energy due to low levels of the sugar glucose, a key brain protein, called eIF2alpha, is altered, reported scientists. This deficiency increases the production of an enzyme that, in turn, triggers production of the protein beta-amyloid that is implicated in Alzheimer’s disease. This finding suggests that improving blood flow to the brain might be an effective therapeutic approach to preventing or treating Alzheimer’s, as it would improve the delivery of glucose to the brain.
Neuron, December 26, 2008;60(6):988–1009.