

## Patient information: Alzheimer's disease

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Alzheimer's disease is a form of dementia, a group of disorders characterized by a decrease in the overall level of cognitive (mental) functioning, especially memory. In addition to memory deficits, people with Alzheimer's disease may have behavioral disturbances and experience generalized physical and mental decline. This combination eventually prevents a person from functioning independently in day-to-day life.

Alzheimer's disease accounts for 60 to 80 percent of all cases of dementia among the elderly. About four million Americans have Alzheimer's disease now, and close to three million Americans are caring for relatives or friends who have it. There is striking variety in presentation and severity of symptoms and signs, often leading to underrecognition. Currently available medical treatments can be of help in controlling the mental and behavioral symptoms of the disease but leave much to be desired in many cases. Meanwhile, ongoing research has made major advances in understanding the underlying causes of this kind of dementia. This research holds great promise for developing treatments to slow down and hopefully delay the onset or even prevent Alzheimer's disease.

**WHAT CAUSES ALZHEIMER'S DISEASE?** — Scientists have not yet been able to determine exactly why and how Alzheimer's disease develops, but they are learning more about these issues all the time. We do know that the brains of patients with this disease develop deposits of a protein called beta amyloid (these deposits are also known as plaques), and that people also develop disorganized masses of protein fibers within the brain cells known as neurofibrillary tangles. In addition, Alzheimer's disease is associated with the death of nerve cells (neurons) in important parts of the brain. Right now, these changes to the brain can only be seen during autopsy after a patient's death, but researchers are working to develop ways of imaging these brain changes in living patients.

**WHAT ARE THE RISK FACTORS FOR ALZHEIMER'S DISEASE?** — A risk factor is not necessarily the cause of a particular condition, but merely something that helps predict it. Some risk factors can indeed cause a particular illness. As an example, we know that smoking can cause lung cancer. The relationship between other risk factors and specific diseases is more complicated, and in many cases scientists do not know if there is any causal relationship involved or not. They just know that people who have a particular risk factor are for some reason also more likely to get a particular disease.

**Age** — The biggest risk factor for Alzheimer's disease is age: the older you are, the more likely you are to develop Alzheimer's disease. As an example, one large study found that among people ages 65 to 69, the estimated annual incidence (number of cases developing per year) of Alzheimer's was less than 1 percent. For those ages 70 to 74, the incidence was 1 percent, and for people ages 75 to 79, 2 percent. Estimated incidence of Alzheimer's rose to more than 3 percent among people ages 80 to 84, and to more than 8 percent among those 85 and over.

**Family history** — Having a close family member with Alzheimer's disease also increases the chances of developing it yourself. People with a first-degree relative, such as a parent or sibling, with Alzheimer's disease have a 10 to 30 percent chance of developing the disorder. The risk is probably higher if the family member developed Alzheimer's disease at a younger age and lower if the family member did not get Alzheimer's disease until late in life. Scientists have discovered a particular gene that appears to predispose individuals to developing Alzheimer's, called the

apolipoprotein E epsilon 4 genotype. But even among individuals with this gene pattern, only about one-half develop Alzheimer's by age 90, suggesting that other factors are also involved. It is possible to test for this gene in family members of patients with Alzheimer's disease, but this is not recommended outside of a research setting.

**Other** — Other factors that are more weakly associated with Alzheimer's disease include a history of head injury with loss of consciousness, a history of depression, and a low level of education. The explanation for these associations is not clear, but may relate to brain reserve.

Certain other medical conditions are also associated with a greater likelihood of developing Alzheimer's, but researchers are still working out these relationships. As an example, there is some suggestion that conditions such as high blood pressure (hypertension), low blood pressure (hypotension), and high cholesterol (hypercholesterolemia) may increase the chance of developing dementia.

Some research findings suggest that patients who take the cholesterol-lowering medications called statins may have a reduced risk of developing Alzheimer's disease, and that controlling risk factors for cardiovascular disease may reduce risk of dementia, but this has not been thoroughly studied yet. People with diabetes are also at increased risk of developing dementia in general, although not necessarily Alzheimer's dementia. As people get older, they are more likely to have several diseases that can cause dementia, such as vascular disease, Parkinson's disease, and Alzheimer's disease.

**WHAT ARE THE SYMPTOMS OF ALZHEIMER'S DISEASE?** — As in other forms of dementia, the earliest symptoms of Alzheimer's disease are *gradual and often subtle*. Many patients and their families wonder how to tell symptoms of dementia from normal signs of aging, since everyone has occasional lapses in memory. Often, it is the patient's family that speaks to the doctor about a continuing decline of mental abilities, particularly problems remembering recent information, while patients with actual dementia may be unaware or at least do not complain of problems. Fortunately, the changes in memory and mental ability with normal aging are quite mild and do not continue to get worse over time, nor should they interfere with a person's day-to-day functioning.

Normal age-related changes consist primarily of slight changes in memory and being a bit slower to learn and process information. In contrast, patients with dementia suffer from **worsening memory loss and** may also have difficulty with one or more of the following:

- Confusion
- Difficulties with language (for example, not being able to find the right words for things)
- Difficulty with concentration and reasoning
- Problems with complex tasks like paying bills or balancing a checkbook
- Problems with orientation or spatial ability (for example, getting lost in a familiar place)

As Alzheimer's *disease progresses*, the decline in cognition continues, and **personality and behavioral symptoms** are more likely to appear. These can include:

- Increased anger, hostility, and/or suspicion
- Aggression and physical violence
- Hallucinations
- Delusions
- Wandering
- Increased number of physical accidents

The speed of progression and combination of these features that affect people with Alzheimer's disease can vary widely from one person to the next. For some, severe dementia can occur within five years of the diagnosis; for others, the process can take more than a decade. Most people

with Alzheimer's disease do not die from the disease itself, but from a secondary illness such as pneumonia, urinary tract infection, or complications of falls.

**HOW IS ALZHEIMER'S DISEASE DIAGNOSED?** — There is no single medical or laboratory test that can determine whether or not a person has Alzheimer's disease. Instead, a doctor must make the diagnosis based upon information gathered from the patient and family, and upon the results of tests given to assess mental functioning.

The doctor will want to know about the patient's recent history: the nature of any mental changes or memory loss, behavioral changes, any medical conditions or illnesses, and any medications the patient has been taking. A complete physical check-up and blood work may be done at this time.

It is important to rule out other possible causes for a patient's mental difficulties. These can include medications and other medical conditions themselves. As examples, both delirium and depression can present with symptoms similar to those of Alzheimer's disease and can also occur in patients with dementia.

The doctor will also need to rule out other forms of dementia before diagnosing Alzheimer's disease. These include vascular dementia, dementia caused by Parkinson's disease, dementia related to alcohol or medications, and other conditions.

To get a sense of how the patient is functioning mentally, the doctor will probably administer a brief test of cognition such as the Mini-Mental State Exam, or MMSE. This is the most widely used test of cognitive functioning for patients with suspected dementia. It takes about seven minutes to complete and evaluates a range of mental functions from knowing the day, month, and year to being able to remember a short list of words or write a full sentence spontaneously. Other similar tests are also available and are preferred by some physicians.

**HOW IS ALZHEIMER'S DISEASE TREATED?** — Although scientists are learning more about Alzheimer's disease all the time, like most chronic diseases, they have not yet found a way to cure it. They have, however, developed a number of medications to help control some of the symptoms of Alzheimer's disease, and promising research with animals suggests that methods to prevent and even cure the condition may be developed in the not too distant future.

**Safety issues** — A major issue in managing individuals with Alzheimer's disease is safety. Because many patients don't realize that their mental functioning is impaired, they try to continue their day-to-day activities as usual. This can lead to physical danger, and caregivers must help prevent situations that could threaten the safety of the patient or others.

**Driving** — Driving is often one of the first safety issues to come up, and sometimes a difficult one to deal with because driving represents independence for many people. Although patients with Alzheimer's disease do not have any more car accidents during the first year after diagnosis than other drivers, the risk for crashes more than doubles after that first year. It is best to deal with the issue of driving early.

There may be quite a bit of resistance to curtailing driving since the patient may not realize that he or she has impairments in mental functioning or reaction time. But all patients with Alzheimer's disease will eventually reach the point where driving is dangerous to themselves and others, so the physician and family must work together to determine when a patient needs to stop. Most patients give up driving without too much difficulty, but this issue can be a source of conflict.

Most states do not have specific regulations or restrictions on driving for patients with dementia, although some do provide roadside testing and other ways of evaluating an individual's ability to drive safely. Even if a patient newly diagnosed with mild Alzheimer's disease is still able to drive,

the appropriateness of driving needs to be reassessed every six months, with the expectation that driving will eventually no longer be possible.

**Cooking** — Cooking is another area in which dementia can lead to serious safety concerns. Symptoms such as distractibility, forgetfulness, and difficulty in following directions can lead to burns, fires, or other injuries. Many doctors recommend that patients be taught early how to use a microwave oven, which poses fewer dangers than stove-top cooking.

**Wandering** — As dementia progresses, some patients with Alzheimer's disease begin to wander. Because restlessness, distractibility, and memory problems are common, a wandering patient may easily get lost. Identification bracelets can help insure that a lost wanderer gets home, and the Alzheimer's Association provides a "safe return" program with ID tags and 24-hour assistance. Regular exercise may decrease the restlessness that often leads to wandering. For patients that continue to wander, alarm systems that alert caretakers when the wearer goes too far from home are available.

**Falls** — For all types of dementia, including Alzheimer's disease, falls eventually become a safety concern. As an example, one study in Sweden found that among people over age 75, those with cognitive impairment were twice as likely to suffer from hip fractures as those with no impairment. Caregivers should assess the physical environment in the home to eliminate potential hazards such as loose electrical cords, slippery rugs, and so forth.

**Aggressive behavior** — One of the most difficult issues to deal with for caregivers and Alzheimer's patients is aggressive behavior. Fortunately this is not common. However, many family members are reluctant to report a patient's aggressive behavior, which as dementia progresses can become physically abusive. In addition, some caregivers can become so frustrated in coping with an Alzheimer's patient that they themselves begin to behave abusively. Alert physicians will be sensitive to signs of aggressive behavior in both patients and caregivers and arrange for help if necessary. Medications are available to help control behavioral difficulties in patients with Alzheimer's, as well as to help with mental functioning (see below).

**Medical therapy** — Although there are no medications available yet that cure Alzheimer's disease, several drugs have been developed to help control symptoms of the disease. These include medications to manage memory and cognitive impairments as well as behavioral problems. In addition, research shows promise for developing treatments to modify the course of the disease and possibly delay or even prevent it.

**Treatment of the memory disturbance** — There are four drugs currently approved in the United States for treating memory disturbances in Alzheimer's disease. All work by inhibiting a substance called cholinesterase, allowing more of a chemical called acetylcholine to be active in the nervous system. The reason for the use of these drugs is based upon the observation that people with Alzheimer's disease have a loss of acetylcholine in the brain.

The oldest of the cholinesterase inhibitors is [tacrine](#) (Cognex), which was approved by the FDA in 1993. While tacrine is effective, it is rarely used today because it is associated with toxic effects on the liver and must be taken four times a day.

A similar drug, [donepezil](#) (**Aricept**), has fewer side effects and can be taken just once a day. Donepezil is usually taken in doses of 5 mg per day for four weeks and then increased to 10 mg per day. Clinical studies have shown that the medication can improve the rate of decline in some patients with mild to moderate Alzheimer's disease. Side effects, including diarrhea, nausea, and vomiting, should be monitored.

The third of the cholinesterase inhibitors approved for treating Alzheimer's patients is [rivastigmine](#) (**Exelon**), which also appears to help some patients with mild to moderate disease. This drug has side effects similar to those produced by donepezil and appears to have similar effectiveness. It is usually started at a dose of 1.5 mg twice per day and gradually increased to 6 mg twice per day.

The most recent drugs approved for treatment are [galantamine \(Reminyl\)](#) and [memantine](#). The results of clinical trials suggest that both of these medications may slow the decline of mental ability and the decline in performance of daily activities in some patients with early Alzheimer's disease.

Although the drugs mentioned above appear to be effective for some patients with mild to moderate forms of Alzheimer's, none of them has been shown to be effective in treating more advanced stages of the disease. Memantine may be an exception, as it did seem to help the more severely demented patients in a clinical trial. Typically, a doctor will try one of these drugs for a period of about eight weeks, monitoring for side effects and evaluating the patient's response. If there is no improvement, the doctor will usually stop the drug. Sometimes a patient's performance will decline after the drug is stopped; if this happens, the physician may start it again. The drugs can be administered indefinitely if they appear to be having a positive effect.

It is important to have **realistic expectations** about the potential benefits of these drugs. As mentioned, none of them cures the disease, and over time patients will continue to have a decline in function. In people in whom these drugs are effective, the hope is that this decline will be sufficiently slowed so that patients and their families can experience a longer period of quality functioning.

**Treatment of behavioral symptoms** — The behavioral symptoms of Alzheimer's disease are often more troubling than the cognitive symptoms. Even in mild cases, agitation, anxiety, and irritability can occur and generally become more problematic as the disease advances.

Before a physician treats these kinds of symptoms, he or she must first rule out problems caused by other illness or by medications the patient is already taking. After this, both medications and behavioral therapy can be helpful.

Problems such as wandering, hoarding or hiding objects, withdrawal, and socially inappropriate behavior are often more responsive to behavioral therapy than to medications. Other problems, such as agitation, aggression, delusions, and hallucinations, may be more responsive to medications. Because these latter behaviors are often the reason for putting an Alzheimer's patient into a nursing home, some physicians will try to control them as soon as they appear.

**Delusions** are common in patients with dementia, occurring in up to 30 percent of those with advanced disease. Paranoid delusions are particularly distressing to both the patients and the caregivers: these often include beliefs that someone has invaded the house, that family members have been replaced by impostors, that spouses have been unfaithful, or that personal possessions have been stolen. If these delusions are troublesome, antipsychotic medications can be prescribed to help control them.

In choosing an appropriate medication, the doctor considers the side effects common to each drug. Some antipsychotic medications can worsen mental processes and cause heavy sedation, while others may cause unacceptable side effects such as muscle tremors, tics, rigidity, etc.

The choice of medications for troublesome delusions and hallucinations is complex. Doctors typically begin these drugs at the lowest effective dose to prevent side effects.

**Depression** is another symptom that occurs frequently in patients with dementia and can be difficult to diagnose. Even in elderly people without dementia, depression can produce signs of mental impairment. In addition, elderly patients who become depressed are also more likely to develop dementia.

If a physician suspects depression in a patient with Alzheimer's disease, the likely first step will be to prescribe an antidepressant from the group known as selective serotonin reuptake inhibitors, or SSRIs. These include citalopram (Celexa), fluoxetine (Prozac), fluvoxamine (Luvox), paroxetine (Paxil), and sertraline (Zoloft). Other antidepressant medications from the group known as tricyclic antidepressants are generally not recommended because of potential side effects, called anticholinergic effects, which can worsen confusion.

**Anxiety and aggression** in patients with Alzheimer's disease can be **caused by** a number of factors, including:

- Confusion or misunderstanding
- Frightening or paranoid delusions
- Depression
- Sleep disorders
- Medical conditions such as difficulty urinating or severe constipation

The best treatment for these symptoms depends upon what triggers them. As an example, a patient who becomes aggressive during periods of confusion might best be treated through behavior therapy, while someone who becomes aggressive during delusions might require antipsychotic medication as described above. Patients with sleep disorders may benefit from both medication and behavior changes: for example, limiting daytime naps, increasing physical activity, avoiding evening consumption of [caffeine](#) and alcohol, as well as a sleeping medication. However, sleeping pills also will worsen confusion.

Medications typically used to ease **agitation and sleeping** difficulties include the antidepressant [trazodone](#) (Desyrel) and the mood stabilizer [carbamazepine](#) (Eptol, Tegretol). Benzodiazepines such as [alprazolam](#) (Xanax) and [diazepam](#) (Valium) are not generally recommended for patients with Alzheimer's disease because of their side effects.

**Other medical treatments** — A number of therapies have been studied in patients with Alzheimer's disease, including some that may alter the course of the dementia, not just treat the symptoms.

#### **Bright Light plus Melatonin** - *inexpensive combination* Provides Modest Positive Effects

Many patients with dementia have disturbed sleep-wake cycles along with deteriorating cognition, mood, and behavioral organization. Bright light and melatonin are major synchronizers of the circadian pacemaker. A study of 189 patients provided daytime **bright (1000 lux)** or dim (300 lux) **light**, and residents (90% women) were randomized to receive **melatonin (2.5 mg/day)** or placebo for a maximum of 3.5 years. Compared with double placebo, bright light reduced cognitive decline by 5%, depressive symptoms by 19%, and physical functional decline by 53%. Melatonin reduced sleep latency by 19%; also, it increased sleep duration by 6% and duration of uninterrupted sleep by 25%. Melatonin alone tended to aggravate behavioral withdrawal and depression; its effects on restlessness and nocturnal awakenings emerged slowly. The **combination of light and melatonin** increased sleep efficiency by 3.5%; also, the combination reduced nocturnal restlessness by 9%, duration of individual nocturnal awakenings by 12%, and agitated behavior by 9%. Published: JAMA 2008 Jun 11; 299:2642.

**Comment:** In this unique study, a simple environmental intervention had **modest and beneficial effects on cognition, mood, and physical function** in elderly group-home residents. Combining melatonin with bright light improved sleep and attenuated nocturnal arousal. Most improvements were comparable in size to what would be expected for a marketed medication. As the authors note, even the cognitive effects (which were more modest than the physical ones) fell in the range of those reported for cholinesterase inhibitors. Light plus melatonin could improve quality of life in this highly vulnerable population at a modest cost.

**Vitamin E and selegiline** — Reports of the effectiveness of [vitamin E](#) (alpha-tocopherol) have been appearing in the popular press, and research findings suggest that vitamin E may indeed slow the progression of Alzheimer's disease. Another substance also believed to help slow the condition is the drug [selegiline](#) (Eldepryl). In a study that compared vitamin E, selegiline, and a combination of the two, the two treatments were equally effective, and no advantage was seen in the group that got both.

There were some problems with the methods of this study, making it difficult to form definitive conclusions. Nevertheless, this trial was the first to show a benefit of any therapy for delaying the progression of Alzheimer's disease. Right now, many doctors are recommending that people with Alzheimer's disease take [vitamin E](#), which has fewer side effects than [selegiline](#), at a dosage of 1000 IU twice daily.

**Estrogen** — Estrogen has also been studied as a treatment that might slow the course of Alzheimer's disease, but the most recent and well-controlled studies to date have reported no beneficial effects. Earlier studies suggested that estrogen might help prevent the onset of Alzheimer's disease. However, data from the Women's Health Initiative (WHI) and the WHI Memory Study (WHIMS) do not support these observations and suggest that estrogen replacement does not protect against dementia and may even increase the risk.

**Nonsteroidal antiinflammatory drugs** — Research with nonsteroidal anti-inflammatory drugs (**NSAIDs**) such as diclofenac, ibuprofen, naproxen, and indomethacin has been inconclusive. So far, there is no evidence that these drugs can help treat Alzheimer's disease, but recent research seems to say they might help prevent its development.

### **Protective effects of NSAIDs on the development of Alzheimer's disease 2008**

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**Background:** NSAIDs may protect against Alzheimer's disease (AD), but observational studies and trials have offered contradictory results. Prior studies have also been relatively short and small. We examined the effects on AD risk of NSAID use for >5 years and of NSAIDs that suppress formation of A $\beta$ <sub>1-42</sub> amyloid in a large health care database.

**Methods:** Cases were veterans aged 55 years and older with incident AD using the US Veterans Affairs Health Care system. Matched controls were drawn from the same population. NSAID exposure was categorized into seven time periods: no use,  $\leq 1$  year, >1 but  $\leq 2$  years, and so on. Using conditional logistic regression, adjusted for race and comorbidities, we tested the association between AD development and the use of 1) any NSAID, 2) any NSAID excluding nonacetylated salicylates, 3) each NSAID class, 4) each individual NSAID, and 5) A $\beta$ <sub>1-42</sub>-suppressing NSAIDs.

**Results:** We identified 49,349 cases and 196,850 controls. Compared with no NSAID use, the adjusted odds ratios for AD among NSAID users decreased from 0.98 for  $\leq 1$  year of use (95% CI 0.95–1.00) to 0.76 for >5 years of use (0.68–0.85). For users of ibuprofen, it decreased from 1.03 to 0.56. Effects of other NSAID classes and individual NSAIDs were inconsistent. There was no difference between a group of A $\beta$ <sub>1-42</sub>-suppressing NSAIDs and others.

**Discussion:** Long-term nonsteroidal anti-inflammatory drug (**NSAID**) use was protective against Alzheimer disease. Findings were **clearest for ibuprofen**. A $\beta$ <sub>1-42</sub>-suppressing NSAIDs did not differ from others.

**Abbreviations:** **AD** = Alzheimer disease; **ADAPT** = Alzheimer's Disease Anti-inflammatory Prevention Trial; **COX-2** = cyclooxygenase-2; **DEpiC** = Disease Epidemiology Cohorts; **VA** = Veterans Affairs.

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**Ginkgo biloba** — The herbal supplement [ginkgo biloba](#) has also been studied in patients with Alzheimer's disease and shown some promise in reducing mental decline. Use of ginkgo for this purpose is appealing since it has few side effects. However, because the cholinesterase inhibitors have been better studied, and because supplements are not well regulated in the United States (leading to potential contamination with other products), physicians are not recommending the use of ginkgo for patients with Alzheimer's disease at this time. In addition, better, more recent studies have **not confirmed any benefit** of using ginkgo biloba. As with all herbal supplements, patients or their families should advise physicians if they are taking ginkgo since it can interact unfavorably with prescription medications.

**Ginkgo to Prevent Dementia? Forget About It, another alternative treatment bites the dust.**

Several preclinical studies have suggested that *Ginkgo biloba* extract is neuroprotective, although some treatment studies (including meta-analyses) have shown little cognitive benefit. Americans are estimated to spend \$100 million yearly on ginkgo in the hope that it enhances memory or prevents memory loss. To ascertain whether *G. biloba* prevents all-cause dementia and Alzheimer disease, researchers conducted the Ginkgo Enhancement of Memory (GEM) study, a multisite, randomized, controlled 6-year trial. This well-planned and well-executed study definitively answers the question of whether *G. biloba* prevents dementia: It does not, even in those with incipient dementia. The authors argue that because of dementia's slow process, *G. biloba* given for a longer duration might be effective, and they plan further MRI analyses of some subjects. As an editorialist discusses, the investigators did not include data on overall cognitive decline or functional disability in this report. However, considering the lack of efficacy reported here, these measures are unlikely to yield positive findings. In the present economy, people can put the **\$100 million to better use.**

**HMG CoA reductase inhibitors** — Two studies have suggested that the cholesterol lowering HMG CoA reductase inhibitors (statins), such as Lipitor and Zocor, may prevent the development of dementia. However, larger randomized trials do not confirm this benefit. Additional studies are needed before firm conclusions can be made.

### **WHAT DOES THE FUTURE HOLD FOR THE TREATMENT AND PREVENTION OF ALZHEIMER'S DISEASE?**

— A large number of research projects are currently underway, studying the underlying mechanisms of how Alzheimer's develops and progresses over time. This kind of research holds

considerable promise for developing ways to not just treat the symptoms of this debilitating disease, but actually change its course and even prevent it.

As noted above, two studies have suggested that the cholesterol lowering **statins** may prevent the development of dementia. Like the research on **estrogen** and on **NSAIDs**, these findings are only suggestive and require more research before we will know if these medications can really help treat or prevent Alzheimer's disease.

Other research is aimed at discovering more about the amyloid-beta plaques that develop in the brains of Alzheimer's patients, and how to prevent or even remove them. The protein tangles that are characteristic of Alzheimer's are another target of research, with the first goal being to figure out whether these tangles actually contribute to the disease or are a result of it, perhaps caused by the amyloid-beta plaques.

Other animal research has shown that vaccines made from the amyloid-beta proteins may be able to not only slow down the progression of brain damage that results from Alzheimer's, but perhaps even reverse it. This kind of research will not yield results for treating humans for years, but the findings so far are promising.

The best hope for an aging society like ours may be research to discover and then control risk factors for Alzheimer's disease. Just delaying the average onset of the disease could significantly reduce the burden of the illness given the advanced older age of most victims.

**CAREGIVING** — Alzheimer's disease is a debilitating disease that can impose an enormous burden on both patients and families or other caregivers. People with Alzheimer's disease become less able to care for themselves as the disease progresses. Some tips that may help caregivers create a favorable environment include the following:

- Use **memory aids** such as writing out a list of daily activities, phone numbers, and instructions for usual tasks (ie, the telephone, microwave, etc).
- **Establish nighttime rituals** that are calming to improve behavioral problems, which are often worst at night. Leave a night light on when going to bed.
- **Avoid major changes** to the home environment.
- Employ **safety measures** in the home, such as locks on medicine cabinets, keeping furniture in the same place to prevent falls, removing electrical appliances from the bathroom, and setting the water heater no higher than 120°F.
- **Speak slowly**, present only **one idea at a time**, and be patient when waiting for responses.
- Encourage **physical activity and exercise**. A daily walk can help to prevent physical decline and to improve behavioral problems.

Caregiving can be an all-consuming experience. Be sure to take time for yourself, take care of your own medical problems, and arrange for respite when you need them. **Ask** Dr Kassman's staff for **Caregiver/Eldercare Resource guide!**

**WHERE TO GET MORE INFORMATION** — Your doctor is the best resource for finding out important information related to your particular case. Not all patients with Alzheimer's disease are alike, and it is important that your situation is evaluated by someone who knows you as a whole person.

This discussion will be updated as needed every four months on our web site ([www.uptodate.com](http://www.uptodate.com)). Additional topics as well as selected discussions written for healthcare professionals are also available for those who would like more detailed information. A number of other sites on the internet have information about Alzheimer's disease. Information provided by the National Institutes of Health, national medical societies, and some other well-established organizations are often reliable sources of information, although the frequency with which their information is updated is variable.

- National Library of Medicine [www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)
- National Institute of Neurological Disorders and Stroke [www.ninds.nih.gov](http://www.ninds.nih.gov)
- National Institute of Mental Health [www.nimh.nih.gov](http://www.nimh.nih.gov)
- Administration on Aging (Dept of Health & Human Services) [www.aoa.dhhs.gov](http://www.aoa.dhhs.gov)
- The American Geriatrics Society [www.americangeriatrics.org](http://www.americangeriatrics.org)

- Alzheimer's Association [www.alz.org](http://www.alz.org)
- Alzheimer's Disease Education and Referral (ADEAR) Center (National Institute on Aging) [www.alzheimers.org](http://www.alzheimers.org)
- Eldercare Locator (Administration on Aging) [www.eldercare.gov](http://www.eldercare.gov)
- Family Caregiver Alliance [www.caregiver.org](http://www.caregiver.org)

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