

# basics of alzheimer's disease

**What it is and  
what you can do**



alzheimer's  association®

# Basics of Alzheimer's disease

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**Alzheimer's (*AHLZ-high-merz*) is a disease of the brain that causes problems with memory, thinking and behavior. It is not a normal part of aging.**

**Alzheimer's gets worse over time. Although symptoms can vary widely, the first problem many people notice is forgetfulness severe enough to affect their ability to function at home or at work, or to enjoy lifelong hobbies.**

**Other symptoms include confusion, getting lost in familiar places, misplacing things and trouble with language.**

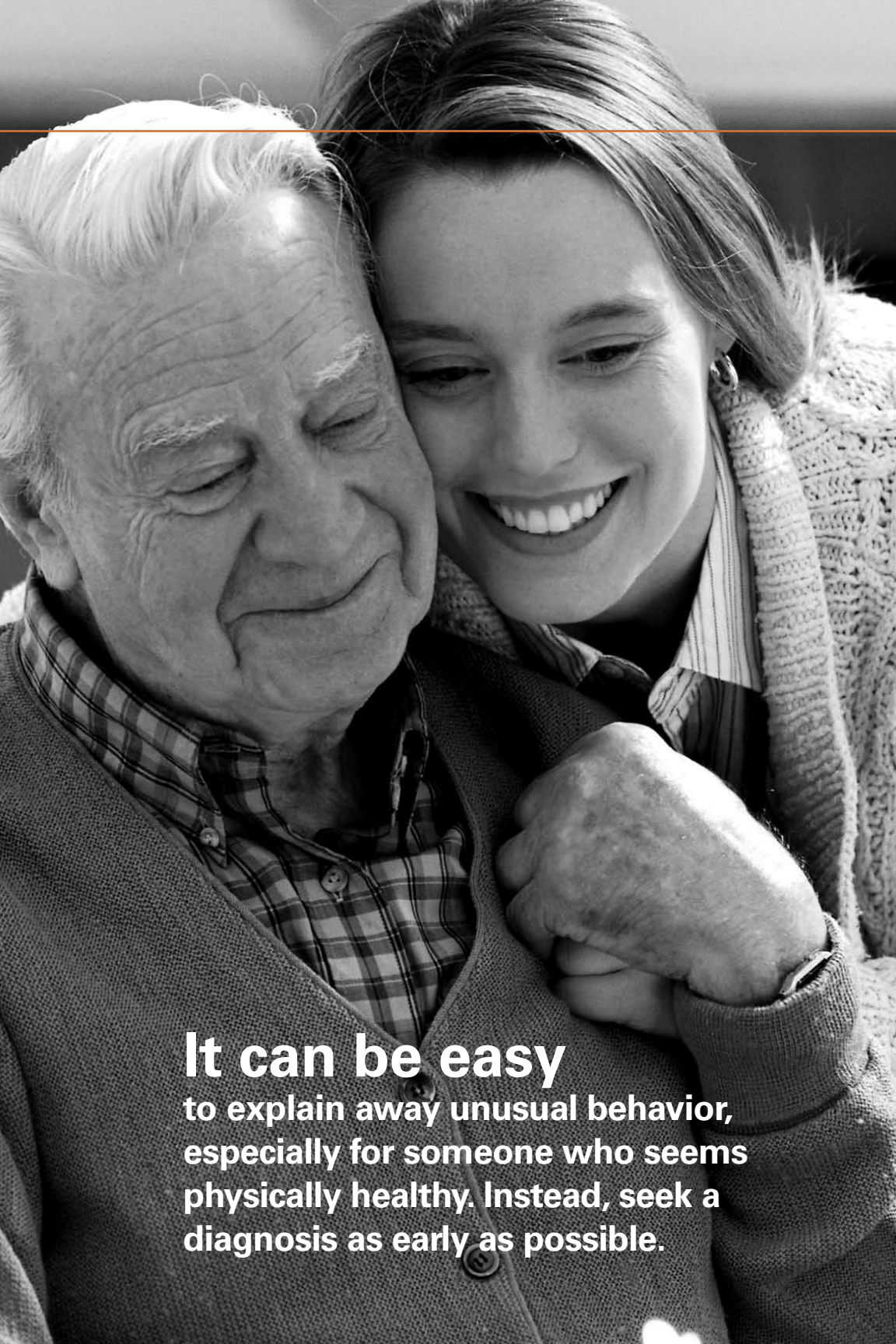
# What it is and what you can do

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Perhaps you have noticed possible signs of Alzheimer’s disease.  
Or you may know someone who has just been diagnosed.

**Basics of Alzheimer’s disease** is intended for anyone who would like to learn more about this disease and related dementias.

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**It can be easy**  
to explain away unusual behavior,  
especially for someone who seems  
physically healthy. Instead, seek a  
diagnosis as early as possible.

# When memory loss is a warning sign

Many people worry about becoming more forgetful as they grow older. Our brains change as we age just like the rest of our bodies.

Most of us eventually notice some slowed thinking and problems remembering certain things. However, serious memory loss, confusion and other major changes in the way our minds work are not a normal part of aging.

Many conditions can disrupt memory and mental function. Symptoms may improve when the underlying cause is treated.

Possible causes of memory problems include:

- Depression
- Medication side effects
- Excess use of alcohol
- Thyroid problems
- Poor diet
- Vitamin deficiencies
- Certain infections
- Alzheimer’s disease and related dementias

Anyone experiencing significant memory problems should see a doctor as soon as possible. Early diagnosis and intervention methods are improving dramatically, and treatment options and sources of support can improve quality of life.

An early diagnosis helps individuals receive treatment for symptoms and may allow them to take part in decisions about care, living arrangements, money and legal matters.

If you need assistance finding a doctor with experience evaluating memory problems, your local Alzheimer’s Association chapter can help.

What’s the difference?	
Someone with Alzheimer symptoms	Someone with normal age-related memory changes
Forgets whole experiences	Forgets part of an experience
Rarely remembers later	Often remembers later
Is gradually unable to follow written/ spoken directions	Is usually able to follow written/ spoken directions
Is gradually unable to use notes	Is usually able to use notes
Is gradually unable to care for self	Is usually able to care for self



# 10 warning signs of Alzheimer's disease®

**Memory loss that disrupts everyday life is not a normal part of aging. The Alzheimer's Association has developed a checklist to help you recognize the difference between normal, age-related memory changes and Alzheimer's disease.**

**There's no clear line that separates normal changes from warning signs. It's always a good idea to check with a doctor if a person's abilities seem to be declining.**

## **1. Memory loss**

Forgetting recently learned information is one of the most common early signs of dementia. A person begins to forget more often and is unable to recall the information later.

**What's normal?** Forgetting names or appointments occasionally

## **2. Difficulty performing familiar tasks**

People with dementia often find it hard to plan or complete everyday tasks. Individuals may lose track of the steps involved in preparing a meal, placing a telephone call or playing a game.

**What's normal?** Occasionally forgetting why you came into a room or what you planned to say

## **3. Problems with language**

People with Alzheimer's disease often forget simple words or substitute unusual words, making their speech or writing hard to understand. They may be unable to find the toothbrush, for example, and instead ask for "that thing for my mouth."

**What's normal?** Sometimes having trouble finding the right word



#### **4. Disorientation to time and place**

People with Alzheimer's disease can become lost in their own neighborhoods, forget where they are and how they got there, and not know how to get back home.

**What's normal?** Forgetting the day of the week or where you were going

#### **5. Poor or decreased judgment**

Those with Alzheimer's may dress inappropriately, wearing several layers on a warm day or little clothing in the cold. They may show poor judgment about money, like giving away large sums to telemarketers.

**What's normal?** Making a questionable or debatable decision from time to time

#### **6. Problems with abstract thinking**

Someone with Alzheimer's disease may have unusual difficulty performing complex mental tasks, like forgetting what numbers are and how they should be used.

**What's normal?** Finding it challenging to balance a checkbook

#### **7. Misplacing things**

A person with Alzheimer's disease may put things in unusual places: an iron in the freezer or a wristwatch in the sugar bowl.

**What's normal?** Misplacing keys or a wallet temporarily

#### **8. Changes in mood or behavior**

Someone with Alzheimer's disease may show rapid mood swings – from calm to tears to anger – for no apparent reason.

**What's normal?** Occasionally feeling sad or moody

#### **9. Changes in personality**

The personalities of people with dementia can change dramatically. They may become extremely confused, suspicious, fearful or dependent on a family member.

**What's normal?** People's personalities do change somewhat with age

#### **10. Loss of initiative**

A person with Alzheimer's disease may become very passive, sitting in front of the TV for hours, sleeping more than usual or not wanting to do usual activities.

**What's normal?** Sometimes feeling weary of work or social obligations

# Alzheimer's disease and other types of dementia



**Dementia (*dih-MEN-shuh*) is a general term for the loss of memory and other intellectual abilities serious enough to interfere with daily life. Alzheimer's is the most common form of dementia.**

Today we estimate that 4.5 million Americans have Alzheimer's. That includes 10 percent of those over 65 years old and nearly 50 percent of those 85 and older. By 2050, that number may reach 16 million.

Because 70 percent of those with Alzheimer's live at home, the impact of the illness extends to millions of family members, friends and caregivers.

## Other types of dementia

Alzheimer's disease accounts for 60 to 70 percent of cases of dementia. Other disorders that can cause memory loss, confusion and other symptoms associated with dementia include:

**Vascular or multi-infarct dementia**, often considered the second-most common form, refers to impairment caused by reduced blood flow to parts of the brain. The most common type is what used to be called "multi-infarct dementia," in which a series of very small strokes block small arteries. Individually, these strokes are too small to cause major symptoms, but over time their combined effect becomes noticeable.

Symptoms of vascular dementia can be similar to Alzheimer's disease. They include problems with memory, confusion and difficulty following instructions. In some cases, the impairment associated with vascular dementia can occur in "steps" rather than in the slow, steady decline usually seen in Alzheimer's.

**Mixed dementia** is a condition in which Alzheimer's disease and vascular dementia occur together. Some experts believe that this combination is also very common.

**Parkinson's disease** affects control of movement, resulting in tremors, stiffness and impaired speech. Many individuals with Parkinson's also develop dementia in later stages of the disease. Drugs for Parkinson's can help steadiness and muscle control, but have no effect on dementia symptoms.



**Dementia with Lewy bodies** often starts with wide variations in attention and alertness. Individuals affected by this illness often experience visual hallucinations as well as muscle rigidity and tremors similar to those associated with Parkinson's disease.

**Physical injury to the brain** caused by an automobile accident or other significant trauma can damage or destroy brain cells, and cause symptoms of dementia such as behavioral changes, memory loss and other cognitive difficulties.

**Huntington's disease** is an inherited, progressive disorder that causes irregular movements of the arms, legs and facial muscles, personality changes and a decline in the ability to think clearly.

**Creutzfeldt-Jakob disease (CJD)** (*CROYZ-felt YAH-kob*) is a rare, rapidly fatal disorder that impairs memory and coordination, and causes behavior changes. Recently, "variant Creutzfeldt-

Jakob disease (vCJD)" was identified as the human disorder believed to be caused by eating meat from cattle affected by "mad cow disease."

**Frontotemporal dementia or Pick's disease** is another rare disorder that may sometimes be hard to distinguish from Alzheimer's. Personality changes and disorientation often occur before memory loss.

**Normal pressure hydrocephalus (NPH)** is caused by a buildup of fluid in the brain. The cause of most cases is unknown. Symptoms include difficulty walking, memory loss and inability to control urine. NPH can sometimes be corrected with surgery to drain the excess brain fluid.

### Mild cognitive impairment (MCI)

Although a person may have noticeable difficulty with memory or other thinking skills, a doctor may determine the person does not meet criteria for being diagnosed with Alzheimer's or another form of dementia. Some doctors use the term mild cognitive impairment (MCI) to describe this situation.

Research has shown that individuals with MCI have an increased risk of progressing to Alzheimer's disease over the next few years, especially when their main area of difficulty involves memory. But a diagnosis of MCI does not always mean the person will develop Alzheimer's.

# How Alzheimer's affects the brain

**The changes that take place in the brain begin at the microscopic level long before the first signs of memory loss.**

## **What goes wrong in the brain**

The brain has 100 billion nerve cells (neurons). Each nerve cell connects to many others to form communication networks. In addition to nerve cells, the brain includes cells specialized to support and nourish other cells.

Groups of nerve cells have special jobs. Some are involved in thinking, learning and memory. Others help us see, hear and smell. Still others tell our muscles when to move.

To do their work, brain cells operate like tiny factories. They receive supplies, generate energy, construct equipment and get rid of waste. Cells also process and store information and communicate with other cells. Keeping everything running requires coordination as well as large amounts of fuel and oxygen.

Scientists believe Alzheimer's disease prevents parts of the cell's factory from running well. They are not sure where the trouble starts. But just like a real factory, backups and breakdowns in one system cause problems in other areas. As damage spreads, cells lose their ability to do their jobs and, eventually, die.



## The role of plaques and tangles

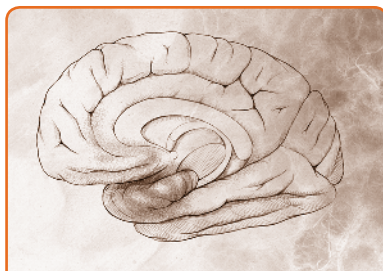
The brains of individuals with Alzheimer's have an abundance of plaques and tangles. *Plaques* are deposits of a protein fragment called beta-amyloid that build up in the spaces between nerve cells. *Tangles* are twisted fibers of another protein called tau that build up inside cells.

Though autopsy studies show that most people develop some plaques and tangles as they age, those with Alzheimer's tend to develop far more. They also tend to develop them in a predictable pattern, beginning in the areas important for memory before spreading to other regions.

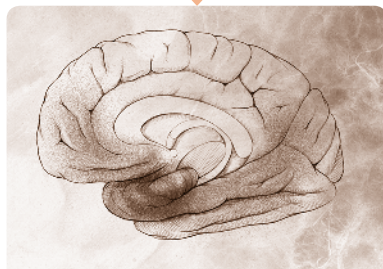
Scientists do not know exactly what role plaques and tangles play in Alzheimer's disease. Most experts believe that they somehow play a critical role in blocking communication among nerve cells and disrupting processes the cells need to survive.

It's the destruction and death of nerve cells that causes the memory failure, personality changes, problems in carrying out daily activities and other symptoms of Alzheimer's disease.

## How Alzheimer's spreads in the brain



Plaques and tangles begin in brain areas involved in memory.



They gradually spread to other areas.



Eventually much of the brain is affected.

Illustrations:  
Alzheimer's Disease Education  
and Referral Center, a service of  
the National Institute on Aging

# Causes and risk factors



**While scientists know that Alzheimer's disease involves the failure of nerve cells, why this happens is still not known. However, they have identified certain risk factors that increase the likelihood of developing Alzheimer's.**

## Age

The greatest known risk factor for Alzheimer's is increasing age. Most individuals with the illness are 65 and older. The likelihood of developing Alzheimer's approximately doubles every five years after age 65. After age 85, the risk reaches nearly 50 percent.

## Family history and genetics

Another risk factor is family history. Research has shown that those who have a parent, brother or sister with Alzheimer's are two to three times more likely to develop the disease. The risk increases if more than one family member has the illness.

Scientists have so far identified one gene that increases the risk of Alzheimer's but does not guarantee an individual will develop the disorder. Research has also revealed certain rare genes that virtually guarantee an individual will develop Alzheimer's. The genes that directly cause the disease have been found in only a few hundred extended families worldwide and account for less than

## Aluminum

During the 1960s and 1970s, aluminum emerged as a possible suspect in causing Alzheimer's disease. This suspicion led to concerns about everyday exposure to aluminum through sources such as cooking pots, foil, beverage cans, antacids and antiperspirants. Since then, studies have failed to confirm any role for aluminum in causing Alzheimer's. Almost all scientists today focus on other areas of research, and few experts believe that everyday sources of aluminum pose any threat.

5 percent of cases. Experts believe the vast majority of cases are caused by a complex combination of genetic and nongenetic influences.

### Other risk factors

Age, family history and genetics are all risk factors we can't change. Now, research is beginning to reveal clues about other risk factors that we may be able to influence. There appears to be a strong link between serious head injury and future risk of Alzheimer's. It's important to protect your head by buckling your seat belt, wearing your helmet when participating in sports and "fall-proofing" your home.

One promising line of research suggests that strategies for overall healthy aging may help keep the brain healthy and may even offer some protection against Alzheimer's. These measures include eating a healthy diet; staying socially active; avoiding tobacco and excess alcohol; and exercising both body and mind.

Some of the strongest evidence links brain health to heart health. The risk of developing Alzheimer's or vascular dementia appears to be increased by many conditions that damage the heart and blood vessels. These include heart disease; diabetes; stroke and high blood pressure; or high cholesterol. Work with your doctor to monitor your heart health and treat any problems that arise.

Studies of donated brain tissue provide additional evidence for the heart-head connection. These studies suggest that plaques and tangles are more likely to cause Alzheimer symptoms if strokes or damage to the brain's blood vessels are also present.

### Latinos and African-Americans at risk

Because African-Americans and Latinos in the United States have higher rates of vascular disease, they may also be at greater risk for developing Alzheimer's. According to a growing body of evidence, risk factors for vascular disease – including diabetes, high blood pressure and high cholesterol – may also be risk factors for Alzheimer's and stroke-related dementia.



# How to find out if it's Alzheimer's disease

**People with memory loss or other possible warning signs of Alzheimer's may find it hard to recognize they have a problem and may resist following up on their symptoms. Signs of dementia may be more obvious to family members or friends.**

The first step in following up on symptoms is finding a doctor with whom a person feels comfortable. Your local Alzheimer's Association chapter can help find the right doctor.

There is no single type of doctor that specializes in diagnosing and treating memory symptoms or Alzheimer's disease. Many people contact their regular primary care physician about their concerns. Primary care doctors often oversee the diagnostic process themselves.

In many cases, the doctor may refer the patient to a specialist such as a:

- Neurologist, who specializes in diseases of the brain and nervous system
- Psychiatrist, who specializes in disorders that affect mood or the way the mind works
- Psychologist with special training in testing memory and other mental functions



Photo: Charles Simokaitis/Alzheimer's Association



There is no single test that proves a person has Alzheimer's. The workup is designed to evaluate overall health and identify any conditions that could affect how well the mind is working.

Experts estimate that a skilled physician can diagnose Alzheimer's with more than 90 percent accuracy. Physicians can almost always determine that a person has dementia, but it may sometimes be difficult to determine the exact cause.

**Steps to diagnosis include:**

### **Understanding the problem**

Be prepared for the doctor to ask:

- What kind of symptoms the person has been having
- When they began
- How often they happen
- If they have gotten worse

### **Reviewing medical history**

The doctor will interview the person being tested or family members to gather information about current and past mental and physical illnesses.

It is helpful to bring a list of all the medications the person is taking. The doctor will also obtain a history of key medical conditions affecting other family members, especially whether they may have had Alzheimer's disease or related disorders.

### **Evaluating mood and mental status**

Mental status is tested to give the doctor a general idea of how well the mind is working. This testing gives an overall sense of whether a person:

- Is aware of symptoms
- Knows the date, time and where he or she is
- Can remember a short list of words, follow instructions and do simple calculations

The doctor may ask the person his or her address, what year it is or who is serving as president. The individual may also be asked to spell a word backward, draw a clock or copy a design.

The doctor will assess mood and sense of well-being to detect depression or other illnesses that can cause memory loss and confusion.

### **Partnering With Your Doctor**

The Alzheimer's Association Partnering With Your Doctor workshop offers tips on how to:

- Get a proper diagnosis
- Work with your doctor to get the best care
- Plan for follow-up visits

Booklets are available in English and Spanish. Call 1.800.272.3900 or visit [www.alz.org](http://www.alz.org).

## Physical exam and diagnostic tests

### A physician will:

- Evaluate diet and nutrition
- Check blood pressure, temperature and pulse
- Listen to the heart and lungs
- Perform other procedures to assess overall health

Samples of blood and urine will be collected, and other laboratory tests may also be ordered. Information from these tests can help identify disorders such as anemia; infection; diabetes; kidney or liver disease; certain vitamin deficiencies; thyroid abnormalities; and problems with the heart, blood vessels or lungs. All of these conditions may cause confused thinking, trouble focusing attention, memory problems or other symptoms similar to dementia.

## Neurological exam

A doctor, sometimes a neurologist who specializes in disorders of the brain and nervous system, will closely evaluate the person for problems that may signal brain disorders other than Alzheimer's.

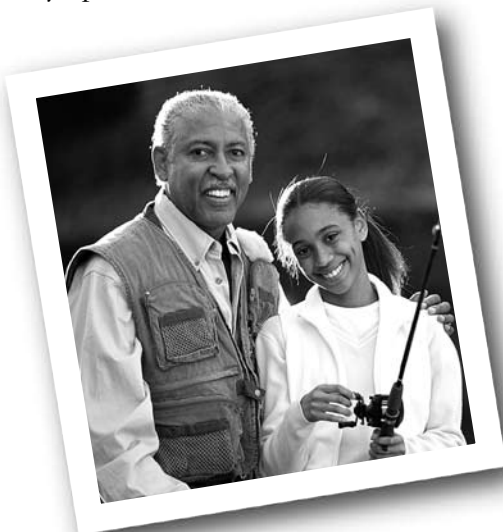
### The physician will also test:

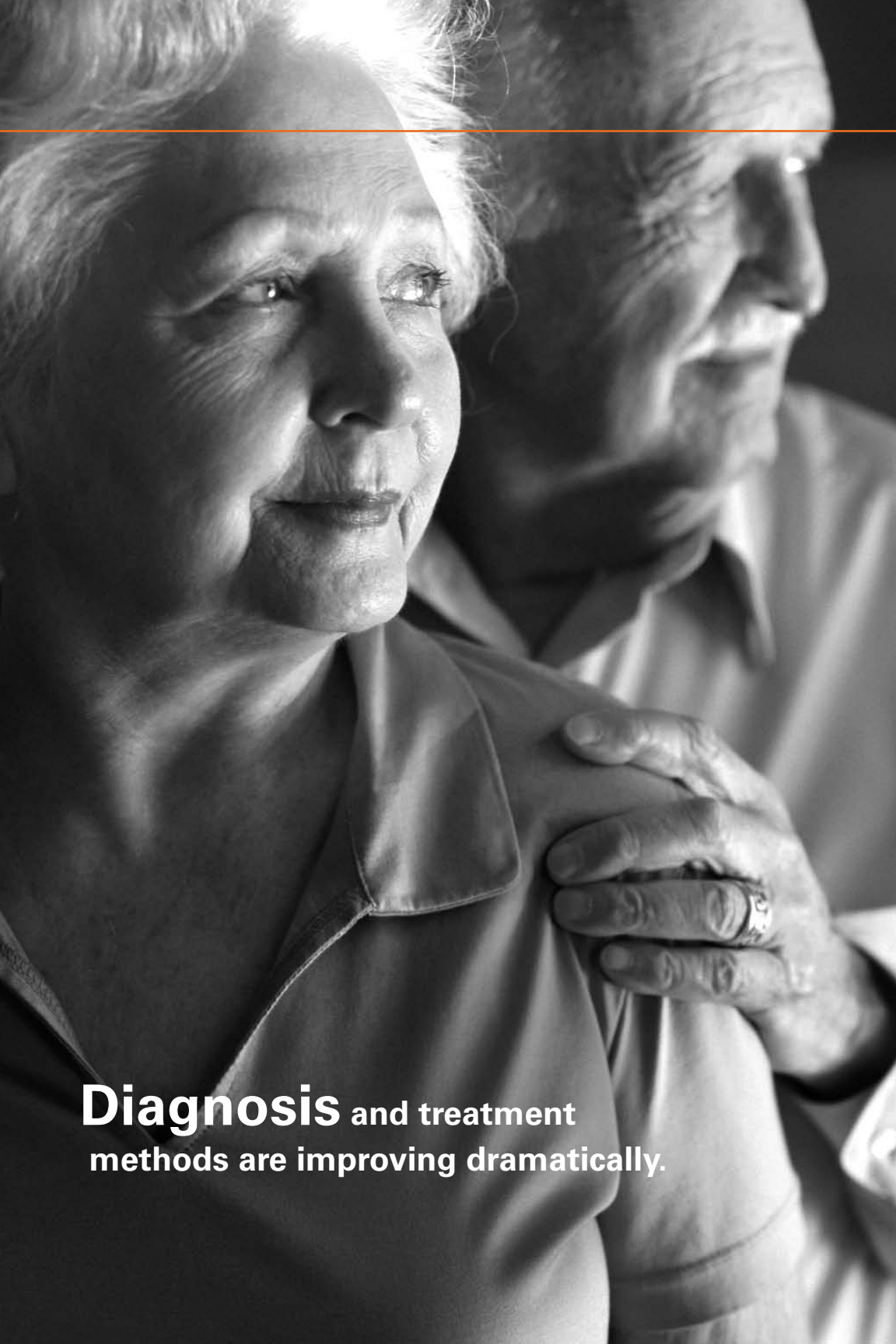
- Reflexes
- Coordination
- Muscle tone and strength
- Eye movement
- Speech
- Sensation

The doctor is looking for signs of small or large strokes, Parkinson's disease, brain tumors, fluid accumulation on the brain and other illnesses that may impair memory or thinking.

The neurological examination may also include studying the brain's structure with magnetic resonance imaging (MRI) or computed tomography (CT). MRIs and CTs can reveal tumors, evidence of small or large strokes, damage from severe head trauma or a buildup of fluid.

Researchers are studying other imaging techniques so they may better diagnose and track the progress of Alzheimer's. Medicare will cover a positron emission tomography (PET) scan as an aid in diagnosis in certain cases.



A black and white photograph of an elderly couple. The woman in the foreground is looking slightly to the right with a gentle expression. The man is behind her, his hand resting on her shoulder in a supportive gesture. The lighting is soft, highlighting their features. A thin orange horizontal line is visible near the top of the image.

**Diagnosis** and treatment  
methods are improving dramatically.

# When the diagnosis is Alzheimer's

Once testing is complete, the doctor will make an appointment to review results and share his or her conclusions.

A diagnosis of Alzheimer's reflects a doctor's best judgment about the cause of a person's symptoms, based on all the tests that have been performed.

## **You may want to ask the doctor:**

- *Why* the diagnosis is Alzheimer's
- *Where* the person may be in the course of the disease
- *What* to expect in the future

Find out if the doctor will manage the person's care going forward and, if not, who will be the primary doctor. The doctor can then schedule the next appointment or provide a referral.

Alzheimer's disease is life-changing for both the diagnosed individuals and those close to them. While there is currently no cure, treatments are available that may help relieve some symptoms.

Research has shown that taking full advantage of available treatment, care and support options can make life better.

## **Consider:**

- How to provide increasing levels of care as the disease progresses
- How the individual and family members will cope with changes in the person's ability to drive, cook and perform other daily activities
- How to ensure the person's safety

Families also need to begin making legal and financial plans. One advantage of timely diagnosis is that the person with dementia can often participate in this planning. The person can also decide who will make medical and financial decisions on his or her behalf in later stages of the disease.

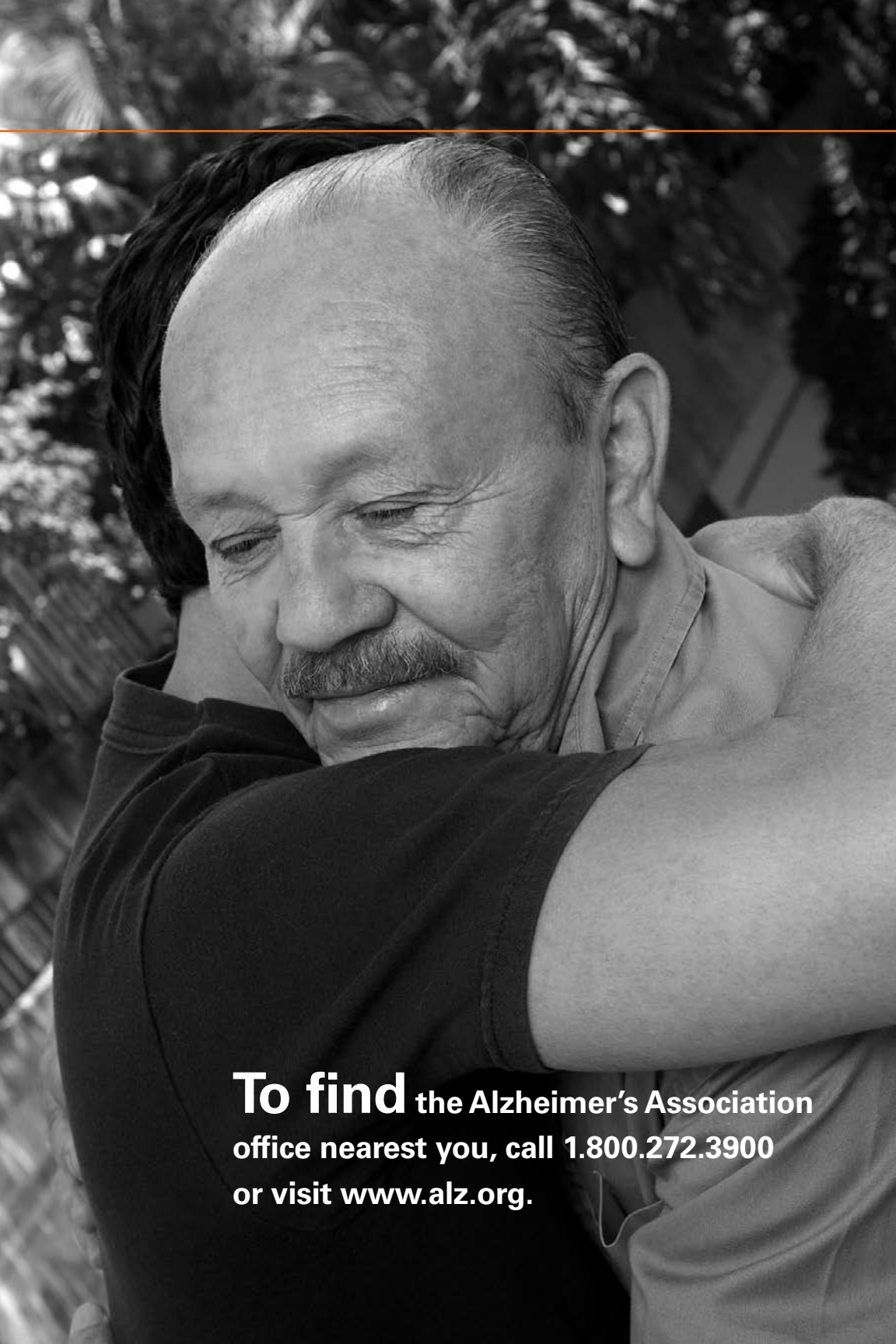
To learn more about planning for the future, contact the Alzheimer's Association.

## **Reliable support**

Your local Alzheimer's Association chapter can connect you with the resources you need to cope with the challenges of Alzheimer's.

Many chapters also provide special programs tailored to their communities, including services for African-Americans, Asian-Americans, Latinos, rural residents and those who live alone.

Our 24/7 helpline operates around the clock to provide information, referral and care consultation by master's level professionals in 140 languages.



**To find** the Alzheimer's Association  
office nearest you, call 1.800.272.3900  
or visit [www.alz.org](http://www.alz.org).

# Stages of the disease

**Alzheimer's disease gets worse over time. Experts have developed "stages" to describe how a person's abilities change from normal function through advanced Alzheimer's.**

It is important to keep in mind that stages are general guides, and symptoms vary greatly. Every person is unique, but we can speak about some common patterns of the illness. Those with Alzheimer's live an average of eight years after their symptoms become noticeable to other people, but survival can range from three to 20 years, depending on age and other health conditions.

This seven-stage framework is based on a system developed by Barry Reisberg, M.D., clinical director of the New York University School of Medicine's Silberstein Aging and Dementia Research Center.

## **Stage 1** **No impairment**

### **Normal function**

The person does not experience any memory problems. An interview with a medical professional does not show any evidence of symptoms.

## **Stage 2** **Very mild decline**

### **May be normal age-related changes or earliest signs of Alzheimer's**

The individual may feel that he or she is having memory lapses – forgetting familiar words or the location of everyday objects. But no symptoms can be detected during a medical exam or by friends, family or co-workers.

## **Stage 3** **Mild cognitive decline**

### **Early-stage Alzheimer's may be diagnosed in some, but not all, individuals at this point**

Friends, family or co-workers begin to notice difficulties. During a detailed medical interview, doctors may be able to detect problems in memory or concentration.





Common Stage 3 difficulties include:

- Noticeable problems coming up with the right word or name
- Trouble remembering names when introduced to new people
- Having noticeably greater difficulty performing tasks in social or work settings
- Forgetting material that one has just read
- Losing or misplacing a valuable object
- Increasing trouble with planning or organizing

## Stage 4

### Moderate cognitive decline

#### Mild or early-stage Alzheimer's

At this point, a careful medical interview should be able to detect clear-cut problems in several areas:

- Forgetfulness of recent events
- Impaired ability to perform challenging mental arithmetic – for example, counting backward from 100 by 7s
- Greater difficulty performing complex tasks, such as planning dinner for guests, paying bills or managing finances
- Forgetfulness about one's own personal history
- Becoming moody or withdrawn, especially in socially or mentally challenging situations

## Stage 5

### Moderately severe cognitive decline

#### Moderate or mid-stage Alzheimer's

Gaps in memory and thinking are noticeable, and individuals begin to need help with day-to-day activities.

At this stage, those with Alzheimer's may:

- Be unable to recall their own address or phone number or the high school or college from which they graduated
- Become confused about where they are or what day it is
- Have trouble with less challenging mental arithmetic, such as counting backward from 40 by subtracting fours, or from 20 by twos
- Need help choosing proper clothing for the season or occasion
- Still remember significant details about themselves and their family
- Still require no assistance eating or using the toilet



## Stage 6

### Severe cognitive decline

#### **Moderately severe or mid-stage Alzheimer's**

Memory continues to worsen, personality changes may take place and individuals need significant help with daily activities.

#### **The person may:**

- Lose awareness of recent experiences as well as their surroundings
- Remember their own name but have difficulty with their personal history
- Distinguish familiar and unfamiliar faces but have trouble remembering the name of a spouse or caregiver
- Need help dressing properly and may, without supervision, make mistakes such as putting pajamas over daytime clothes or shoes on the wrong feet
- Experience major changes in their sleep patterns – sleeping during the day and becoming restless at night
- Need help handling details of the toilet (for example: flushing the toilet, wiping or disposing of tissue properly)

- Have increasingly frequent trouble controlling their bladder or bowels
- Experience major personality and behavioral changes, including suspiciousness and delusions (such as believing the caregiver is an impostor) or compulsive, repetitive behavior like hand-wringing or tissue shredding
- Tend to wander or become lost

## Stage 7

### Very severe cognitive decline

#### **Severe or late-stage Alzheimer's**

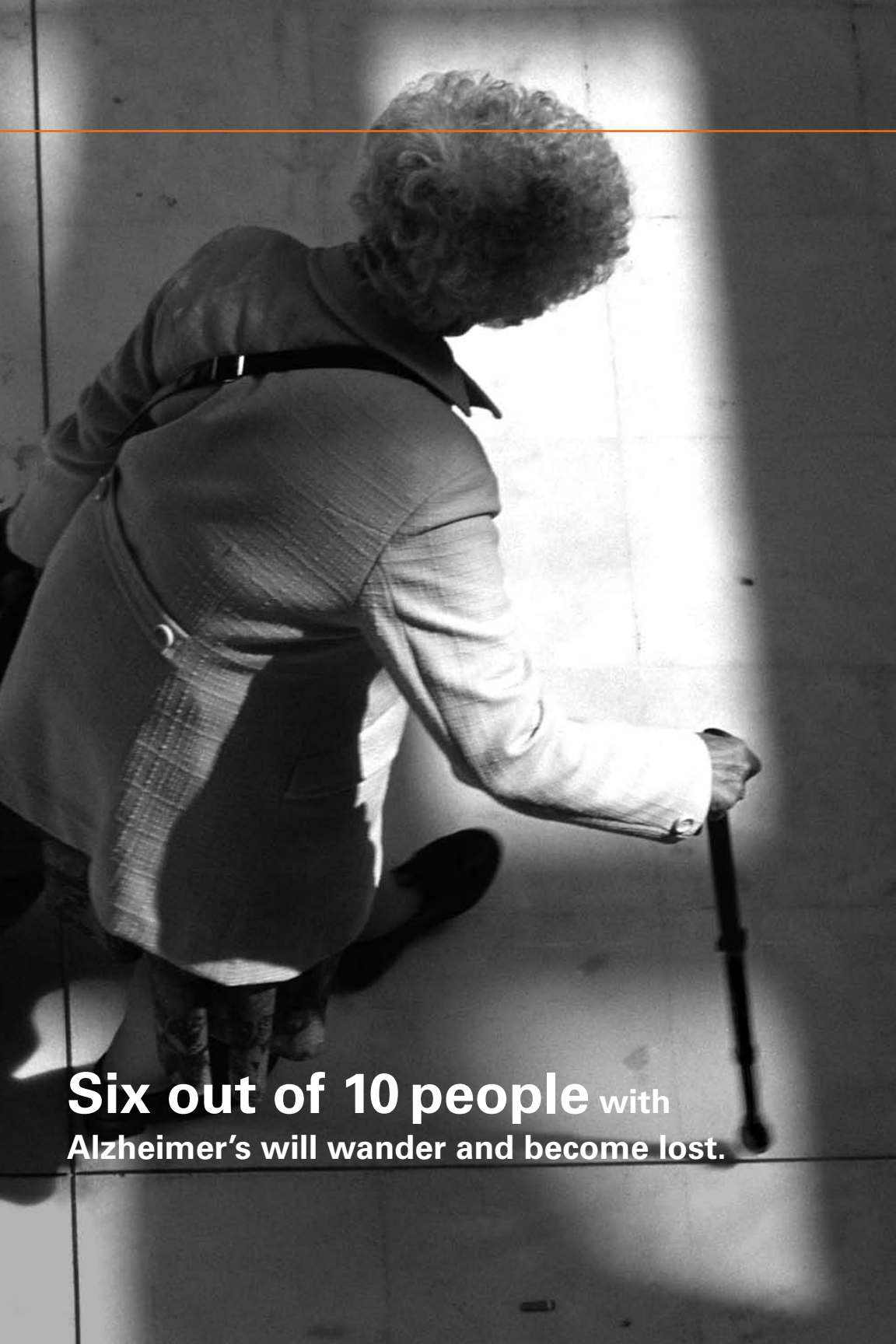
In the final stage of this disease, individuals lose the ability to respond to the environment, to carry on a conversation and, eventually, to control movement. They may still say words or phrases.

At this stage, individuals need help with much of their daily personal care, including eating or using the toilet. They may also lose the ability to smile, to sit without support and to hold their heads up. Reflexes become abnormal. Muscles grow rigid. Swallowing is impaired.

### Wandering and Safe Return

Six out of 10 people with Alzheimer's disease will wander and become lost. If not found within 24 hours, up to half of those who wander risk serious injury or death. Alzheimer's Association Safe Return® is a nationwide program that provides assistance when a person with dementia becomes lost.

**Enroll in Safe Return today at 1.888.572.8566  
or [www.alz.org/safereturn](http://www.alz.org/safereturn)**



**Six out of 10 people** with  
Alzheimer's will wander and become lost.

# Treating the symptoms

**Currently, there is no cure for Alzheimer's and no way to stop the underlying death of brain cells. But drugs and non-drug treatments may help with both cognitive and behavioral symptoms.**

**A comprehensive care plan for Alzheimer's disease:**

- Considers appropriate treatment options
- Monitors their effectiveness as the disease progresses
- Changes course and explores alternatives as necessary
- Respects individual and family goals for treatment, and tolerance for risk

## **Cognitive symptoms**

### **FDA-approved treatments**

Two types of drugs are currently approved by the U.S. Food and Drug Administration (FDA) to treat cognitive symptoms of Alzheimer's disease.

The first type, cholinesterase (*KOH-luh-NES-ter-ays*) inhibitors, are designed to prevent the breakdown of acetylcholine (*a-SEA-til-KOH-lean*), a chemical messenger important for memory and learning. By keeping levels of acetylcholine high, these drugs support communication among nerve cells. They delay worsening of symptoms for six to 12 months for about half of the people who take them.

Three cholinesterase inhibitors are commonly used to treat mild to moderate Alzheimer's:

- Donepezil (Aricept®), approved in 1996
- Rivastigmine (Exelon®), approved in 2000
- Galantamine (Razadyne®), approved in 2001



The second type of drug works by regulating the activity of glutamate, a different messenger chemical involved in information processing:

- Memantine (Namenda®), approved in 2003

Memantine is the only currently available drug in this class. Approved for treatment of moderate to severe Alzheimer's disease, memantine may also temporarily delay the worsening of symptoms for some people.

### **Vitamin E**

Doctors sometimes prescribe vitamin E for cognitive symptoms of Alzheimer's disease. One large federally funded study showed that vitamin E slightly delayed loss of ability to carry out daily activities and placement in residential care.

Scientists think that vitamin E may work because it is an antioxidant (*an-tee-OX-uh-dent*), a substance that may protect cells from certain kinds of chemical wear and tear.

No one should use vitamin E to treat Alzheimer's disease except under the supervision of a physician. The doses used in the federal study were relatively high, and vitamin E can negatively interact with other medications, including those prescribed to prevent blood from clotting.

## **Key terms**

### **Symptoms**

#### **Cognitive**

Symptoms that affect memory, awareness, language, judgment and other thought processes.

#### **Behavioral**

A group of additional symptoms that occur to at least some degree in many individuals with Alzheimer's.

In early stages, people may experience personality changes such as irritability, anxiety or depression.

In later stages, individuals may develop sleep disturbances; wandering impulses; agitation (physical or verbal aggression, general emotional distress, restlessness, pacing, shredding paper or tissues, yelling); delusions (firmly held belief in things that are not real); or hallucinations (seeing, hearing or feeling things that are not there).

### **Treatments**

#### **FDA-approved**

Medication approved by the U.S. Food and Drug Administration (FDA) that specifically treats a symptom of Alzheimer's disease.

#### **Non-drug**

A strategy other than medication that helps relieve a symptom of Alzheimer's disease.

## Caregiver tips

### Create a calm, safe setting that is suited for the person's abilities:

- Eliminate clutter, noise, glare and too much background noise
- Develop soothing rituals with regular daily routines, comforting objects, gentle music and a reassuring touch
- Provide opportunities for exercise and satisfying activities geared to the person's abilities
- Monitor personal comfort: ensure a comfortable temperature and check regularly for pain, hunger, thirst, constipation, full bladder, fatigue, infection and skin irritation
- Be sensitive to frustration about expressing wants and needs
- Rather than arguing or disagreeing, redirect the person's attention
- Simplify tasks and routines
- Avoid open-ended questions – instead, ask yes or no questions
- Allow enough rest between stimulating events, such as visits from friends or neighbors
- Use labels to cue or remind the person
- Equip doors and gates with safety locks
- Remove guns

### Contact the Alzheimer's Association for more information about behavior.

## Behavioral symptoms

Many people find changes in the person's behavior the most challenging and distressing effect of the disease. These include anxiety, agitation, aggression and sleep disturbances. They can have an enormous impact on care and quality of life for individuals living in both family situations and long-term residential care.

As with cognitive symptoms of Alzheimer's disease, the chief underlying cause of behavioral and psychiatric symptoms is the progressive damage to brain cells.

### Other possible causes of behavioral symptoms include:

- **Drug side effects**  
Side effects from prescription medications may be at work. Drug interactions may occur when taking multiple medications for several conditions.
- **Medical conditions**  
Symptoms of infection or illness, which may be treatable, can affect behavior. Pneumonia or urinary tract infections can bring discomfort. Untreated ear or sinus infections can cause dizziness and pain.
- **Environmental influences**  
Situations affecting behavior include moving to a new private residence or residential care facility; misperceived threats; or fear and fatigue from trying to make sense of a confusing world.



There are two types of treatments for behavioral symptoms: non-drug treatments and prescription medications. Non-drug treatments should be tried first.

### **Non-drug treatments**

**Steps to developing non-drug treatments include:**

1. Identifying the symptom
2. Understanding its cause
3. Changing the caregiving environment to remove challenges or obstacles

Identifying what has triggered behavior can often help in selecting the best approach.

**Often the trigger is a change in the person's environment, such as:**

- New caregivers
- Different living arrangements
- Travel
- Admission to a hospital
- Presence of houseguests
- Being asked to bathe or change clothes

Because people with Alzheimer's gradually lose the ability to communicate, it is important to regularly monitor their comfort and anticipate their needs.

### **Prescription medications**

Medications can be effective in managing some behavioral symptoms, but they must be used carefully and are most effective when combined with non-drug strategies. Medications should target specific symptoms so that response to treatment can be monitored.

Prescribing any drug for a person with Alzheimer's is medically challenging. Use of drugs for behavioral and psychiatric symptoms should be closely supervised.



# Hope for the future

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**The Alzheimer's Association is the largest private nonprofit funding resource for Alzheimer research. Since 1982, we have awarded \$185 million to more than 1,400 research investigations.**

When Alois Alzheimer first described the disease in 1906, a person in the United States lived an average of about 50 years. Few people reached the age of greatest risk. As a result, the disease was considered rare and attracted little scientific interest.

That attitude changed as life span increased and scientists began to realize how often Alzheimer's strikes people in their 70s and 80s. The U.S. Department of Health and Human Services recently estimated average life expectancy to be 79.6 years.

Today, Alzheimer's is at the forefront of biomedical research, with 95 percent of what we know discovered in the last 15 years. Some of the most remarkable progress has shed light on how Alzheimer's disease affects the brain. Better understanding of its impact may lead to better ways to treat it.

## **Clinical studies drive progress**

Although many ideas about Alzheimer treatment and prevention begin in the laboratory, the final stage of testing usually involves clinical studies. At any given time, dozens of these studies are actively seeking participants.

Participating in research is a big step. Treatment studies typically last at least several months, and prevention research can run for years. Most treatment studies require the involvement of a caregiver as well as the person with the disease. And joining a study is not a surefire way to get an experimental drug, since most studies randomly assign participants to receive either the drug or an inactive treatment, called a *placebo*.

Still, many people find hope and comfort in participating. Others are motivated by the valuable information provided by research, whether or not the drug or prevention strategy works as hoped.

If you are interested in taking part in clinical research, contact the Alzheimer's Association about opportunities in your area.

## New directions in treatment and prevention

One promising target is beta-amyloid. This protein fragment builds up into the plaques considered one hallmark of the disease. Researchers have developed several ways to clear beta-amyloid from the brain or prevent it from forming. The first experimental drugs that zero in on beta-amyloid are now being tested.

Many other new approaches to treatment are also under investigation worldwide. We don't yet know which of these strategies may work, but scientists say that, with the necessary funding, the outlook is excellent for major breakthroughs over the next 10 years.

Significant progress in prevention is also on the horizon. Some of the most exciting research in this area suggests there are steps people can take to maintain brain health and possibly even reduce the risk of Alzheimer's disease. Eating a low-fat diet rich in fruits and vegetables, exercising regularly, and staying mentally and socially active may all help protect the brain.

Some of the strongest evidence links brain health to heart health. This connection makes sense, because the brain is nourished by one of the body's richest networks of blood vessels. It's especially important for people to do

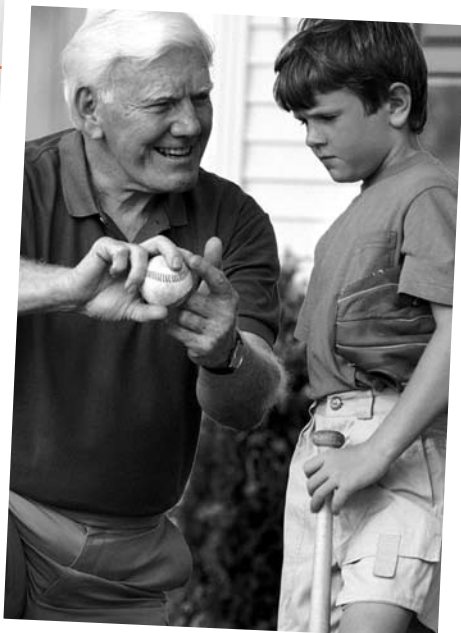


Photo: Charles Simokaitis/Alzheimer's Association

everything they can to keep weight, blood pressure, cholesterol and blood sugar within recommended ranges to reduce the risk of heart disease, stroke and diabetes.

# We can help

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When Alzheimer's disease touches your life, the Alzheimer's Association is here to help. We are the trusted resource for reliable information, education, referral and support to the millions of people affected by the disease, their families and caregivers, and health care professionals.

Our nationwide network of chapters, representing 300 local offices from coast to coast, is the core of our support lifeline. Dedicated professional staff members help people navigate through the difficult decisions and uncertainties of the disease.

- Our 24/7 Nationwide Contact Center Helpline provides information, referral and care consultation in more than 140 languages.
- Our award-winning Web site at [www.alz.org](http://www.alz.org) is a rich resource with evidence-based content that helps inform our diverse audiences.
- More than half of those with Alzheimer's disease will wander and become lost. Alzheimer's Association Safe Return® is a 24-hour nationwide identification and support program. Safe Return works with local law enforcement to quickly return the person with dementia to safety.
- Professionally facilitated support groups, conducted at hundreds of locations, provide people with Alzheimer's and their families a confidential, open forum to share concerns and receive support.
- Educational workshops, led by our professional colleagues, provide people with the information and skills necessary to care for those living with dementia.
- The Alzheimer's Association Green-Field Library is the nation's largest resource center devoted to Alzheimer's disease and dementia. Expert staff librarians fulfill more than 6,000 inquiries each year from the public and from professionals in health care, public policy and research.
- The Alzheimer's Association Maintain Your Brain® campaign works to raise awareness about breakthroughs in prevention and risk reduction, and the importance of brain health.

**For reliable information and support, contact the Alzheimer's Association:  
1.800.272.3900  
[www.alz.org](http://www.alz.org)**



**Our vision** is a world  
without Alzheimer's.



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The Alzheimer's Association,  
the world leader in Alzheimer research,  
care and support, is dedicated to finding  
prevention methods, treatments and an  
eventual cure for Alzheimer's.

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