NP İSTANBUL Brain Hospital

ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED












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ALZHEIMER
HASTALIĞINDA MERAK EDİLENLER

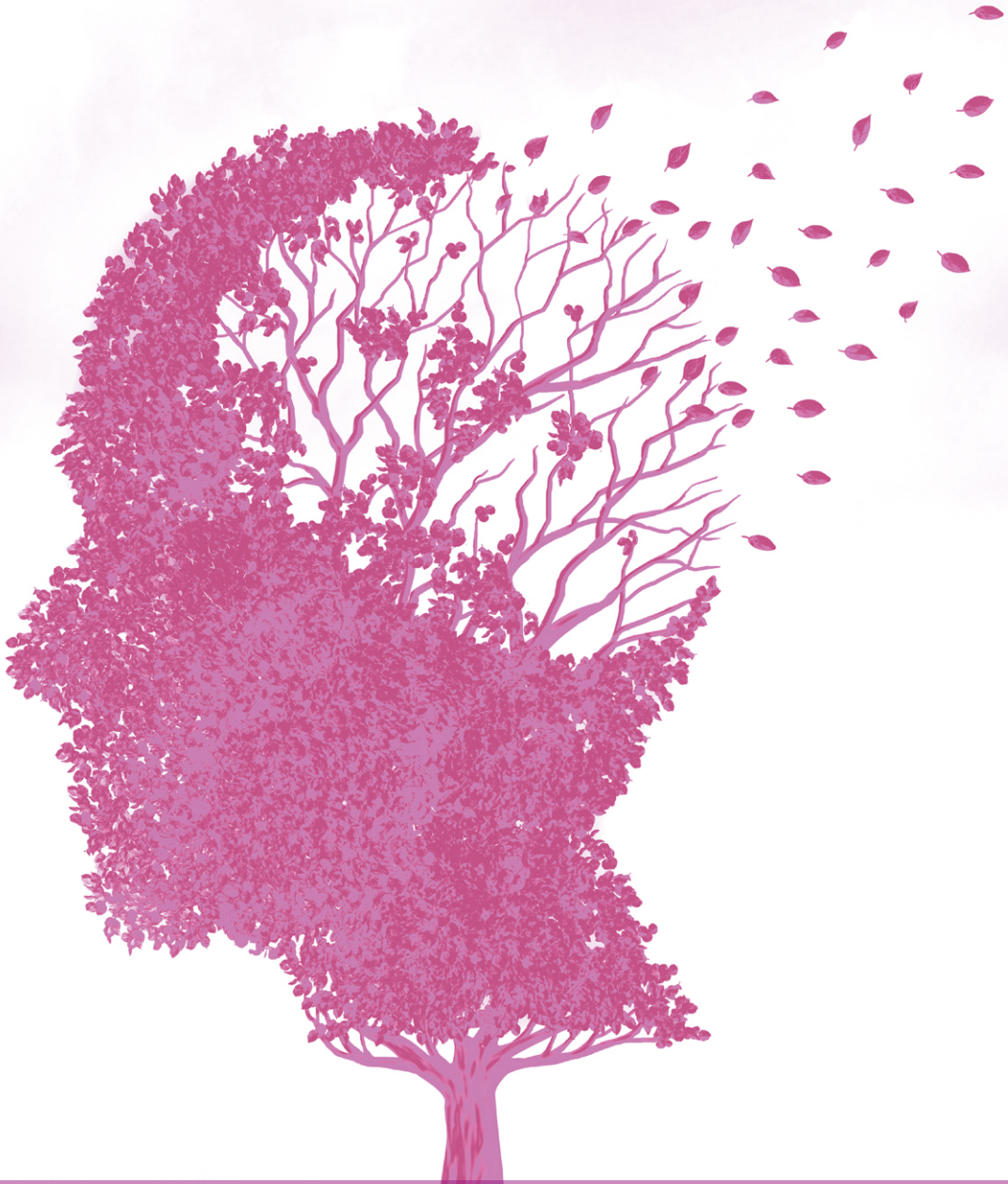






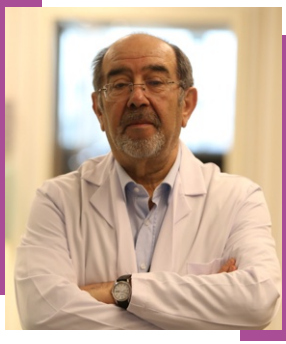




ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED



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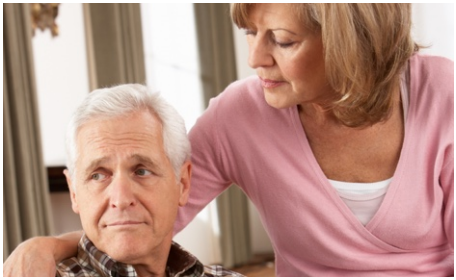
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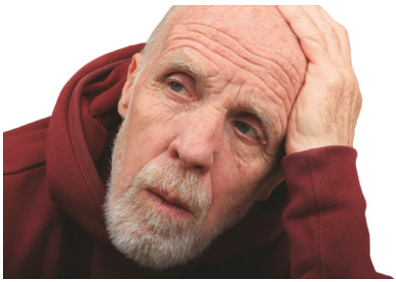
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Every day, we learn more about memory disorders, ranging from ordinary forgetfulness to Alzheimer's disease. The finding that memory and learning disorders play significant roles in diagnosis and treatment across conditions from addiction to depression was particularly new knowledge in neuropsychiatry.

Another new development was the recognition, in psychiatric classification systems, of functions such as "understanding, comprehension, perception and decision-making" as separate disease entities under Neurocognitive Disorders.

Within the neuroscience developing in this context, understanding how Alzheimer's begins and which brain functions it affects is important for early diagnosis and treatment.

An important case reported in the literature revealed significant causal links between chronic depression and Alzheimer's. For mental health professionals, it is useful to consider treating functions such as attention and memory when treating depression.

Neurology and psychiatry complement each other and must also work together in Alzheimer's treatment.

Particularly while early diagnosis and treatment remain possible, dismissing forgetfulness by saying "That is normal at this age" is very concerning.

When a 70-year-old dismisses their forgetfulness, specialists say: "If you plan to live another 5 years, this brain will see you through. But if your lifespan extends and you live another 10–15 years, your final years will be difficult."

Another neglected aspect of Alzheimer's treatment is inadequate information for families and caregivers. Patients whose distress increases and illness worsens because of mistakes in relatives' attitudes are frequently seen.

Alzheimer's requires the patient, relatives and treatment team to work together. Following Memory Center, an important centre in Türkiye, we have continued providing these services for years at NPISTANBUL Brain Hospital, Üsküdar University, NP Feneryolu Medical Center and NP Etiler Medical Center. Starting as a specialist neuropsychiatric hospital, we now offer more comprehensive services and technology, with general hospital facilities focused on the brain. At NPISTANBUL Brain Hospital, Europe's 2nd brain hospital, we have added specialties including internal medicine, neurosurgery, general surgery, paediatrics and ENT, alongside fully equipped operating theatres and an intensive care unit. Our hospital has advanced technological infrastructure supporting surgery in all specialties, with Türkiye's first and only 1A Ultra Clean operating theatre equipment approved by an independent accredited organisation.

My friend and colleague Prof. Dr Oğuz Tanrıdağ, with whom I have worked since 1998, will fill an important gap by writing this concise information booklet for patients and relatives.

I thank him and, on behalf of patients awaiting his next works, hope he will continue.

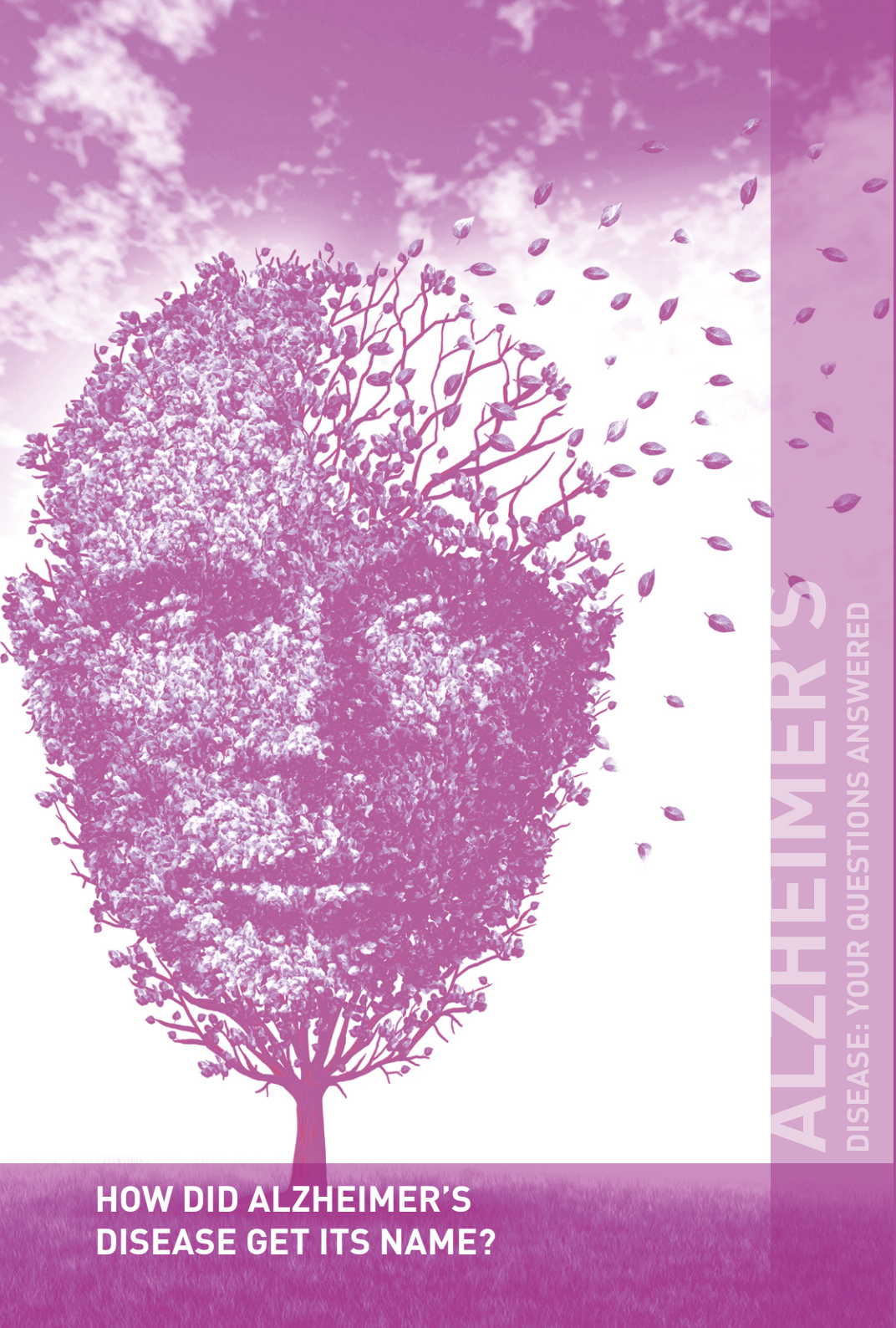
Founding Rector Prof. Dr Nevzat TARHAN
Psychiatrist



Alzheimer's Disease: Your Questions Answered became possible through my recollection of questions accumulated from patients and relatives over the years. My initial plan was a project of 100 questions. I thought the topics raised over the years would reach that number. But as I listed the questions individually, I realised that being asked the same question many times had created that impression. Yes, I had perhaps been asked thousands of questions. Yet, when I reconsidered and recalled their subjects, I could think of none beyond those in this book. One thing was certain: these were the most frequently asked questions about the disease. In answering them, I sometimes drew on a book and sometimes on knowledge directly from life.

I hope my colleagues will take greater interest in Alzheimer's disease, gain further knowledge and be of help in the future.

Prof. Dr Oğuz TANRIDAĞ



HOW DID ALZHEIMER'S DISEASE GET ITS NAME?

ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED



Alois Alzheimer

Alzheimer's disease is named after the German doctor Alois Alzheimer, who described it. Alzheimer lived from 1864 to 1915. He qualified as a doctor at the University of Würzburg in 1887 and, after briefly working in a home for women with mental illness, specialised in psychiatry and neuropathology. On 25 November 1901, he saw a 51-year-old patient named Auguste Deter. She would become an enduring preoccupation and shape his professional life. Auguste had behavioural problems and forgetfulness, particularly paranoia that her husband was unfaithful. Dr Alzheimer wondered how such patients' symptoms related to their brains. In 1903, he went to Munich for further training with Dr Emil Kraepelin, regarded as one of the founders of psychiatry. He continued receiving regular updates on his patient. She died in April 1906, and her brain was sent to him. Alzheimer examined it under a microscope and published his findings in 1907. His report attracted interest because similar findings had previously been thought to occur in older people, and comparable brain findings had not been reported in patients like her.



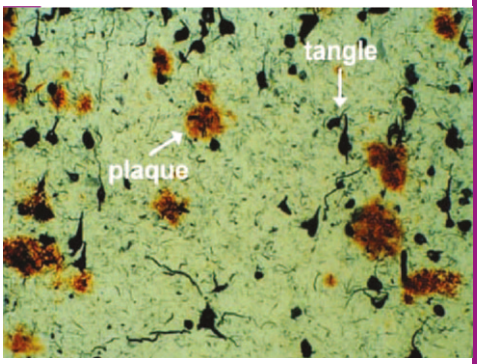
HOW DID ALZHEIMER'S DISEASE GET ITS NAME?



ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

WHAT DID ALZHEIMER FIND IN HIS PATIENT'S BRAIN?

Alongside obvious shrinkage visible to the naked eye, Dr Alzheimer found two pathological features under the microscope in Auguste's brain. One was round plaques containing deposits; the other was tangles resembling broken, fine nerve extensions. These were later recognised as abnormal protein deposits in the brain: amyloid in the plaques and tau in the tangles. The location and density of these lesions correspond to disease stages. However, they begin forming before symptoms appear, which emerge as the deposits become denser. This means the disease begins in the brain even before its earliest symptoms. It has also been suggested that plaques can appear in ageing brains without disease, and that the disease begins to manifest when the second feature is added.



An example representing the abnormal findings Alzheimer identified as the cause of disease in Auguste Deter's brain



The most important concept at our current stage of understanding Alzheimer's is early diagnosis. It identifies the phase in which progression is limited, so treatment started then is more effective. Early diagnostic methods are available, including comprehensive brain scans and cerebrospinal fluid and blood analyses.

ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

WHAT IS ALZHEIMER'S DISEASE?



This brief but basic information helps explain Alzheimer's disease and the problems it causes. Symptoms of brain disease depend on the area affected.

Alzheimer's disease is a form of dementia. Dementia is generally the result of impaired mental and behavioural functions of the brain. Alzheimer's and dementia are not synonymous: many diseases and causes lead to dementia or develop dementia during their course. Alzheimer's is only one of them. In other words, every person with Alzheimer's has dementia, but not every person with dementia has Alzheimer's. Dementia varies according to the disease or condition affecting the brain and how it affects it. Basic knowledge of the relationship between brain regions and their functions helps explain this variation.

Different brain lobes and regions have different functions. Each hemisphere has four lobes. Each lobe has a basic function related to movement or sensation, alongside specialised functions. The frontal lobe, at the front, contains centres for movement, skills, decision-making and social behaviour. The left frontal lobe also contains the speech centre. The upper side lobe is the parietal lobe. Both sides contain centres for perceiving and analysing touch; the left has centres that assist reading and writing, and the right has centres for spatial and positional perception. The lower side lobe is the temporal lobe. Both sides contain hearing centres and memory structures; the left has centres for comprehension and repetition, while the right has structures related to music perception and rhythm. The rearmost lobe is the occipital lobe. Both sides contain centres for vision and interpreting what is seen.

This brief but basic information helps explain Alzheimer's disease and the problems it causes. Symptoms of brain disease depend on the area affected. For example, a problem affecting the motor centre in the left frontal lobe causes weakness in the right arm and leg, or paralysis in more severe cases, because motor nerves cross before reaching the body. A problem in the right frontal lobe has the opposite effect. A problem in the left lower-side lobe affects hearing and comprehension; involvement



of its inner part affects memory for words. A problem in the rear of the right upper-side lobe causes confusion about locations. Damage to the rear of the left posterior lobe prevents the person seeing the right halves of objects, because the visual pathways also cross. Many further examples could be given.

In its usual course, Alzheimer's disease never causes some of the findings described above, while others may occur. This means it produces symptoms related to certain brain regions while sparing others. It begins with memory impairment, followed by problems with attention, concentration, language and recognising places, and eventually loss of self-awareness and complete dependence. This shows that it is a form of dementia that develops and progresses through stages.

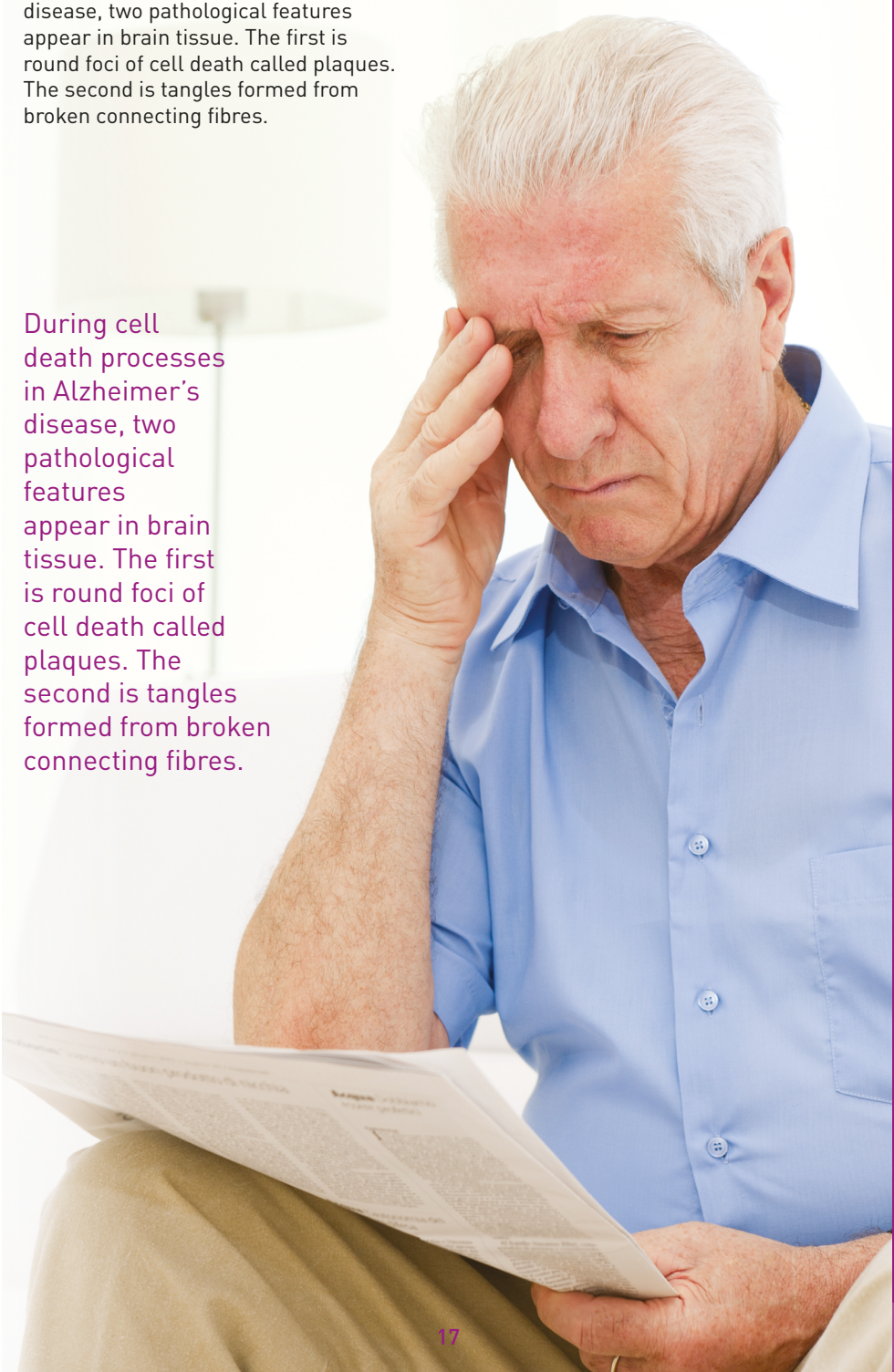
The disease leads to dementia because particular regions are affected. The reason for this selectivity is not clearly known. However, these regions lie between and connect major brain areas, and their cell layers are less clearly defined than those of other areas. The resulting vulnerability is believed to be a factor.

During cell death processes in Alzheimer's

A problem in the rear of the right upper-side lobe causes confusion about locations. Damage to the rear of the left posterior lobe prevents the person seeing the right halves of objects, because the visual pathways also cross.

disease, two pathological features appear in brain tissue. The first is round foci of cell death called plaques. The second is tangles formed from broken connecting fibres.

During cell death processes in Alzheimer's disease, two pathological features appear in brain tissue. The first is round foci of cell death called plaques. The second is tangles formed from broken connecting fibres.





ALZHEIMER'S

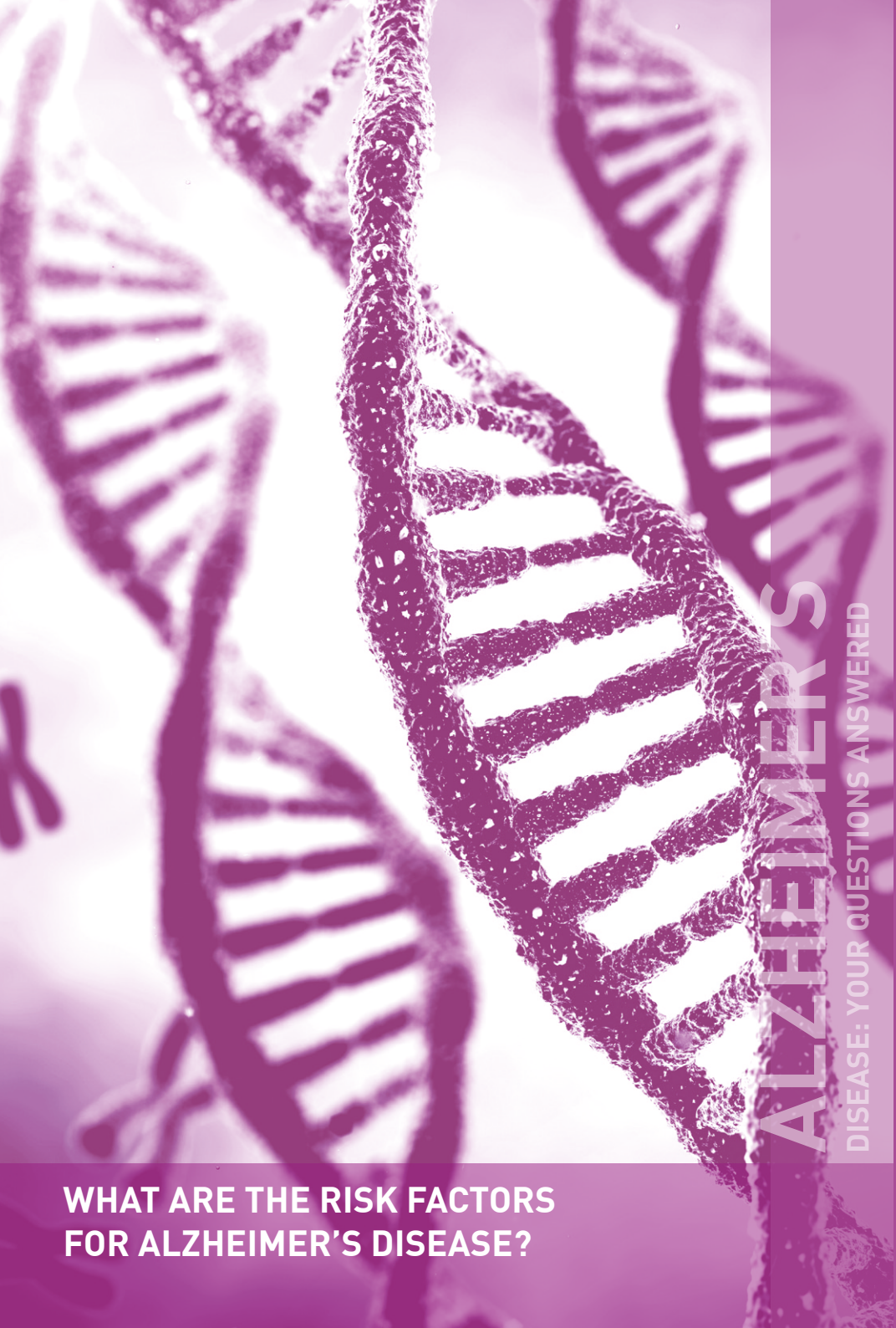
DISEASE: YOUR QUESTIONS ANSWERED

WHY DO THESE SYMPTOMS ARISE IN THE BRAIN?



For more than a century since the disease was described, the causes of these brain findings have prompted questions and various theories. One fact known from the outset is that round plaques can appear simply with ageing, without disease. Later research showed that their number and location matter in the disease.

It was also suggested that aluminium accumulation in the brain might contribute to plaque formation. The latest view links both abnormal features to genetic mechanisms. Amyloid precursor protein (APP), the precursor of the amyloid shown to accumulate in plaques, is found in the brain, heart, kidneys, lungs, spleen and intestines. Its normal function in the body is unknown. The APP gene is on chromosome 21. In Alzheimer's disease, APP is processed abnormally and converted into beta-amyloid, the protein that accumulates in plaques.
Tau, found in the tangles that form the other brain feature of Alzheimer's, normally helps communication between nerve cells. Genetic effects causing this protein to lose its function also affect communication between cells. The APP gene is known as a cause of early-onset Alzheimer's. In recent years, high blood sugar, blood pressure and cholesterol—the vascular risk factors—have also been shown to accelerate these mechanisms.



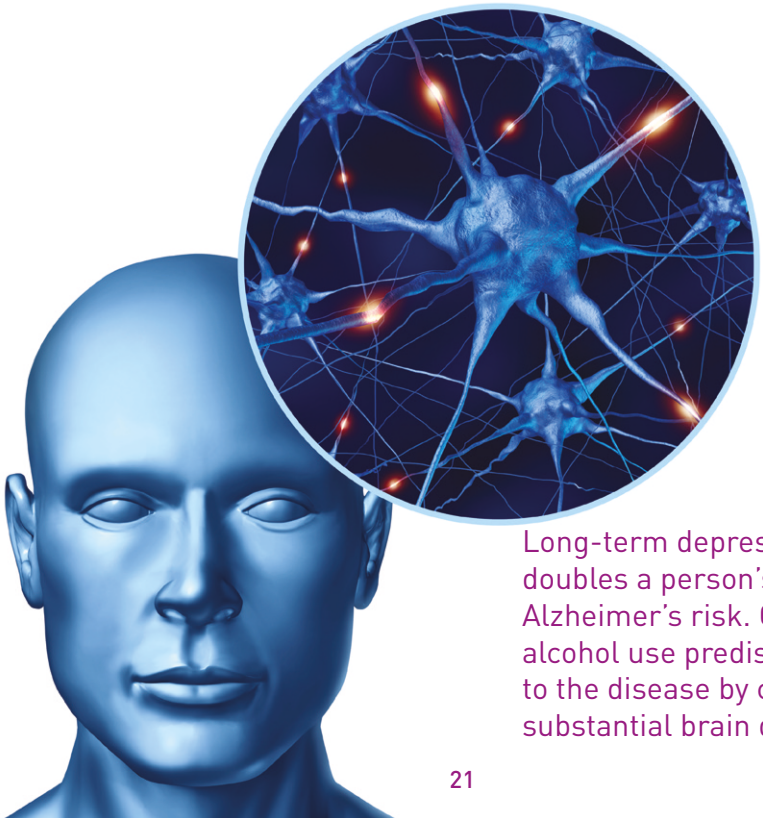
ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED

WHAT ARE THE RISK FACTORS FOR ALZHEIMER'S DISEASE?

Many risk factors predispose a person to Alzheimer's disease. As noted above, the most important is genetic predisposition, indicated particularly by Alzheimer's in the family and onset at an early age (40–60). Ageing has also long been considered a risk factor. Alzheimer's does become more common with age: population studies show that prevalence doubles every 10 years after age 65. It has been reported in at least 50% of people in their 90s. The pathological brain findings seen in Alzheimer's have also been reported to appear and increase in older age. However, not everyone who ages develops Alzheimer's. Other risk factors include head injuries, long-term depression, chronic alcohol use and vascular risk factors such as hypertension, high cholesterol and diabetes.

Repeated head injuries increase risk by causing bleeding in small brain vessels. Professional boxers are therefore at risk of Alzheimer's as well as Parkinson's disease. Long-term depression doubles a person's Alzheimer's risk. Chronic alcohol use predisposes to the disease by causing substantial brain damage. Alzheimer's has been reported to develop between ages 30 and 40 in people diagnosed with Down syndrome in childhood. This association reflects the abnormality on chromosome 21 that causes Down syndrome, which is also a known risk factor for early-onset Alzheimer's.



Long-term depression doubles a person's Alzheimer's risk. Chronic alcohol use predisposes to the disease by causing substantial brain damage.



ALZHEIMER'S
DISEASE: YOUR QUESTIONS ANSWERED

ALZHEIMER'S DISEASE
HOW DOES IT MANIFEST ITSELF?



Man, aged 65

"Welcome!"
"Thank you!"
"May I ask what symptoms you have?"
"Recently, I have started forgetting things in ways that people around me have noticed."
"Such as?"
"In the last 3 months, I once couldn't find the car park I always use. Twice I searched for my car inside it, and once I even told security it had been stolen. My wife says I look for my belongings around the house."
"Do you have any other illnesses or take any medicines?"
"No."
"Has anyone in your family or among your relatives experienced similar problems, now or in the past?"
"Yes, my father was diagnosed with dementia, and my 70-year-old older brother is showing similar symptoms."
"What do you do for work?"
"I'm a financial adviser."
"Have you had any confusion at work?"
"I don't know if it's related, but once I had a major mix-up in a company's accounts. It hasn't happened again, though."

Woman, aged 85

"Welcome, madam!"
"Thank you."
"I hope you're feeling better. Do you have any symptoms?"
"None at all. There's something here (pointing to a mole under her eye). Can it be removed?"
"It can, madam."
"The doctors say it can't be removed; they say it's dangerous."
"I think it can be removed, madam. Apart from that, do you have any health problems?"
"No!"
"Then why have you come to see me?"
"For a check-up."
"A check-up for what?"
"For our illness."
"What illness?"
"(Pauses, thinks...) Nothing at the moment!... For forgetfulness!"
"So you've come because of forgetfulness?"
"But everyone forgets things, doctor."
"What do you think about your forgetfulness?"
"Old age... I'm 85, after all!... Everyone forgets things at this age."



Man, aged 73

"I hope you're feeling better!"
"Thank you... There's nothing wrong with me."
"Why have you come?"
"We've come for her (pointing to his wife). She's the one who's ill!"
"So there's nothing wrong with you?"
"No. My arms and legs are fine, and nothing hurts."
Interview with his wife:
"Could you tell me what has been happening with your husband?"
"He's had forgetfulness and behavioural changes for about 5 years."
"How did it begin?"
"At first, he often forgot what to buy when shopping. Then one day he went shopping and didn't come back. Hours later, someone called us, and we went to collect him. Later, he became jealous and often said I was being unfaithful. Meanwhile, his forgetfulness worsened."

Woman, aged 77

Interview with her daughter:
"Welcome!"
"I'd like to talk about my mother."
"Please go ahead."
"My mother has started behaving strangely recently."
"Such as?"
"The other day, I found a slice of bread and some cheese in a bag under her pillow."
"Did you ask her about it?"
"Yes. She said, 'Someone else must have put it there.'"
"Anything else?"
"Yes. Recently, at meals she doesn't recognise food she cooked herself and asks, 'Who cooked this?'"
"I see..."
"She used to bathe regularly and pay close attention to hygiene. Now, when we remind her, she says, 'I've only just had a bath.' She smells, but doesn't care."
"Does she forget things?"
"She remembers the past very well."

Above are examples of interviews involving 4 patients diagnosed with Alzheimer's after investigations and tests. Although brief, these statements contain important clues that raise a specialist's suspicion of Alzheimer's. Before considering them, however, all but one of these patients did not come independently or of their own accord. Three came with relatives, and preliminary interviews with those relatives reported gradually progressive forgetfulness and behavioural changes in both. One patient sought help independently.



A mistake relatives make is to decide to see a brain specialist, but then take the patient to a specialist unrelated to the condition, whether on recommendation, by their own choice or out of necessity.

The patient who sought help independently describes repeated forgetfulness but no other impairment in behaviour or daily functioning. The other patients' lack of awareness of their problems, or their focus on things affecting their appearance or physical comfort, most likely reflects difficulty recording recent problems in their brains—in other words, impaired recent memory and recording. Considering their relatives' accounts alongside these observations strengthens our suspicion of disease.

The fourth patient's relative reports reduced attention to care and hygiene, confusion about close family members' identities, and hiding food and money under her pillow. The third patient's relative says her husband has recently become very forgetful: he remembers the distant past well but cannot recall recent events, forgets what to buy, confuses monetary values and has become jealous in a way he never was before. The fourth patient's daughter describes behavioural problems her mother does not recognise and neglect of daily care.

The findings described so far fall into three groups:
- Difficulty recording information, with marked forgetfulness about recent events
- Disruption of daily living habits
- Behavioural changes.

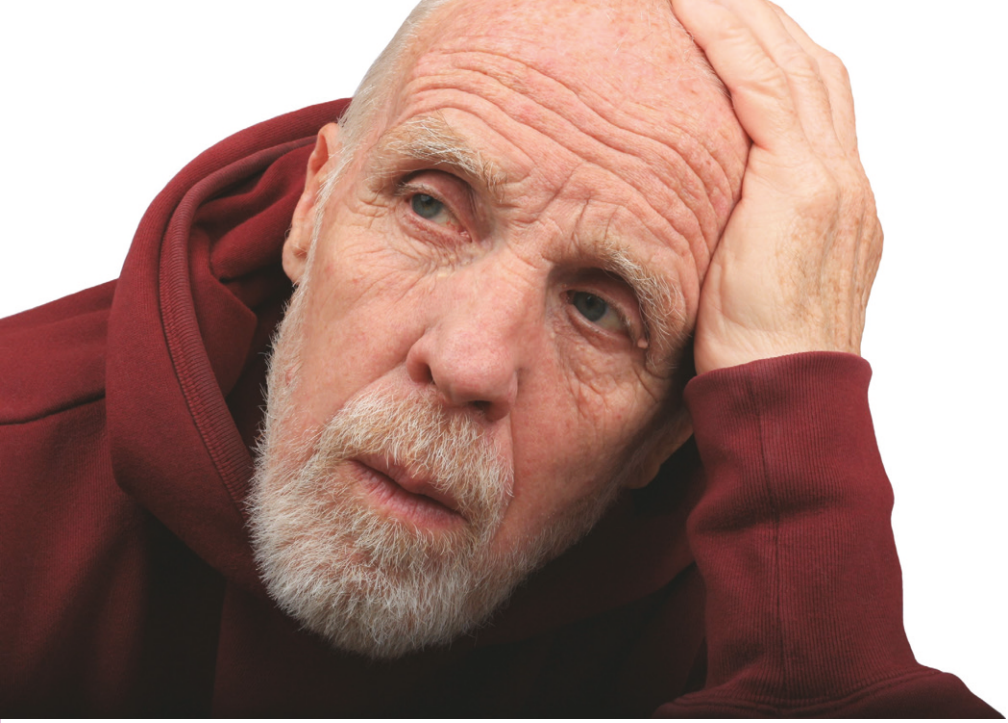
Not all these symptoms are needed to suspect Alzheimer's. People with symptoms from all three groups most likely have advanced disease. By contrast, as in the first patient, newly emerging, increasingly noticeable and repeated forgetfulness may mark the onset of Alzheimer's if no other cause explains it. The initial stage is extremely confusing for relatives and doctors. Relatives' main difficulty is a tendency to explain behaviour through age and personality. Increasing numbers seeking help suggest that this tendency has decreased as relatives have become better informed over the years. Problems involving doctors also complicate relatives' decisions and fall into two groups. First, behavioural problems may lead the family to see a psychiatrist rather than a neurologist specialising in this area. Although this does not always lead to an incorrect outcome, the doctor often views the person as a behavioural patient rather than a brain patient and prescribes only medicines for behavioural difficulties. The disease then progresses, and the appropriate specialist may not be consulted until years later. The second problem is that, after deciding to consult a brain specialist, relatives choose one unrelated to the condition, whether on recommendation, by their own choice or out of necessity.

A doctor's failure to recognise early signs of a neurological disease is not, of course, solely a matter of their area of interest. The onset of Alzheimer's is unclear, and it does not produce physical signs at any stage. Epilepsy, Parkinson's disease and cerebrovascular diseases are very different in this respect. Recognising early Alzheimer's on first seeing a patient requires detailed knowledge of its initial processes and experience with many similar patients.



ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

WHAT IS ORDINARY FORGETFULNESS? HOW DOES IT DIFFER FROM FORGETFULNESS IN ALZHEIMER'S?



Forgetting and forgetfulness are different. Forgetting is a normal event at every age and for everyone. Learning and forgetting are closely connected; no brain only learns and never forgets. As new information is acquired, earlier knowledge is occasionally forgotten. Learning and forgetting follow a natural course throughout life from childhood. Learning continues with age, but forgetting becomes more frequent. Linking new learning to existing knowledge can limit forgetting. Some natural principles of learning and forgetting can be listed as follows:

Experiences from childhood and youth are forgotten less than later experiences. At these ages, the brain has a high capacity to learn and connect what is learned. Sometimes people can repeat information learned then exactly, even though they did not understand it at the time.

Information repeated frequently is forgotten less than information repeated rarely. Repetition strengthens memory by creating different associations at different times. Rereading a novel or rewatching a film at different stages of life reveals things not noticed before. These associations and varied meanings strengthen memory.

Emotionally affecting information is forgotten less than information without an emotional impact. Among many childhood events, we remember those that engaged our emotional intelligence. Most people remember examination results in which they performed unusually well or poorly. The same principle applies to social life. Natural disasters, assassinations and extraordinary success stories witnessed in childhood are recalled much more easily than ordinary, uneventful days.

As forgetting becomes persistent, it turns into forgetfulness. What people and those around them notice and remember is persistent forgetfulness rather than occasional forgetting. This transition does not happen to everyone, whatever their age. Some people never develop persistent forgetfulness and continue to forget only occasionally. People who develop noticeable forgetfulness therefore need assessment. The concept of ordinary forgetfulness, raised by many people, needs clarification here. It is closer to occasional forgetting than persistent forgetfulness. As forgetting naturally increases with age, some mistake it for the beginning of Alzheimer's. In older age groups, forgetting that can be considered natural is simply more evident than in younger groups.

For example, if a 70-year-old is not unusually forgetful compared with peers but forgets more than younger people within and outside the family, this is likely to be ordinary forgetfulness. Another important distinction is that their forgetting is not limited to recent experiences.
People who remember the past well but struggle to recall events of recent days clearly have difficulty recording new memories in the brain and must be assessed.

People whose forgetting stands out among their own age group also need assessment. This may become noticeable among people who have known each other since youth and still meet, such as former classmates who gather regularly. Assessment should investigate the possibility of Alzheimer's.





ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

WHAT ARE THE 10 WARNING SIGNS OF ALZHEIMER'S DISEASE?

WHAT ARE THE 10 WARNING SIGNS OF ALZHEIMER'S DISEASE?

1. Forgetfulness affecting everyday life, particularly recent appointments, meetings, shopping lists and other information.

2. Difficulty planning and calculating, including bills, recipes, and the sequence and duration of tasks.

3. Problems with work and household tasks previously performed without difficulty. Confusion about the home and difficulty remembering how to use objects.

4. Confusion about time and places. Inability to find regularly visited shops, the mosque or workplace. Confusing times of day, days and months.
Confusing the rooms in the home.

5. Difficulty interpreting images, affecting both reading and recognising shapes. Some images may be confused with other places seen long ago. Similar facial expressions may lead to people being identified incorrectly.
Problems may occur in traffic.

6

Speech and comprehension may decline, vocabulary may shrink and meanings may become confused.

7

Putting objects in unfamiliar places, forgetting where they are, then accusing relatives of losing or stealing them. Putting shoes in the refrigerator or hiding eggs under the bed are among the examples.

8

Difficulty judging and making decisions. Taking a long time over decisions that used to be easy, being unable to decide or making unusual, surprising decisions.

9

Withdrawal from social activities. Giving up regular social gatherings, such as class reunions. Instead, staying at home and a shift to a monotonous routine.

10

Personality and behavioural changes. Becoming miserly after being generous, or becoming extravagant after the opposite. Exaggerated sexual interests and preoccupation with them, etc. Taking no pleasure in anything.



ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

HOW COMMON IS ALZHEIMER'S DISEASE IN WOMEN AND MEN?

Alzheimer's is more common in women than men. The reasons are debated. The following explanations have been proposed:

Women live an average of 10 years longer than men. This difference emerges after age 60, not at younger ages. Alzheimer's begins to occur from age 60 and becomes more common with ageing. This may explain its greater frequency in women.

Mental difficulties associated with oestrogen deficiency at menopause include weaker memory, inattention, difficulty finding words, emotional agitation and irritability. These may also be signs of depression generally or, after a certain age, the early signs of Alzheimer's. Research has shown that oestrogen used during this period benefits these symptoms both generally and during Alzheimer's. Oestrogen deficiency may therefore be a main reason affecting disease frequency.



Depression is at least twice as common in women as in men. Its true cause is unknown, but hormonal effects, mentioned above, are the most discussed explanation. Research shows twice the Alzheimer's risk in people with a history of depression. Early symptoms of depression and Alzheimer's also closely resemble each other. These findings raise the possibility that depression affects disease onset.

Hypothyroidism and anaemia are more common in women than men. Symptoms of hypothyroidism closely resemble those of depression and early Alzheimer's. Oestrogen imbalance also contributes to thyroid problems in women, explaining the link between these symptoms and Alzheimer's symptoms. For known reasons, women are more prone to anaemia than men. Anaemia symptoms may be confused with depression and mental sluggishness.



ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

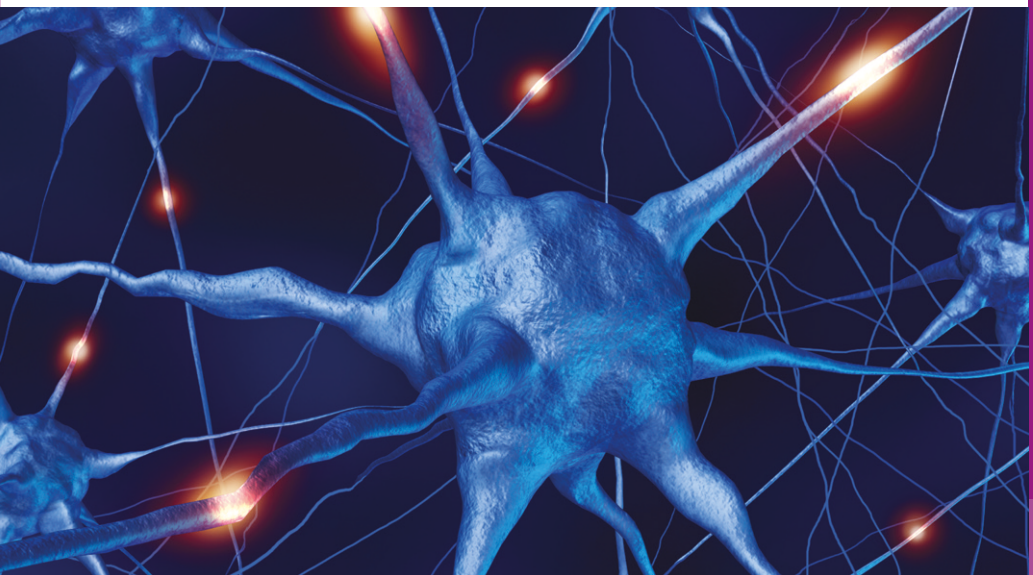
ALZHEIMER'S DISEASE
IS IT A GENETIC DISEASE?

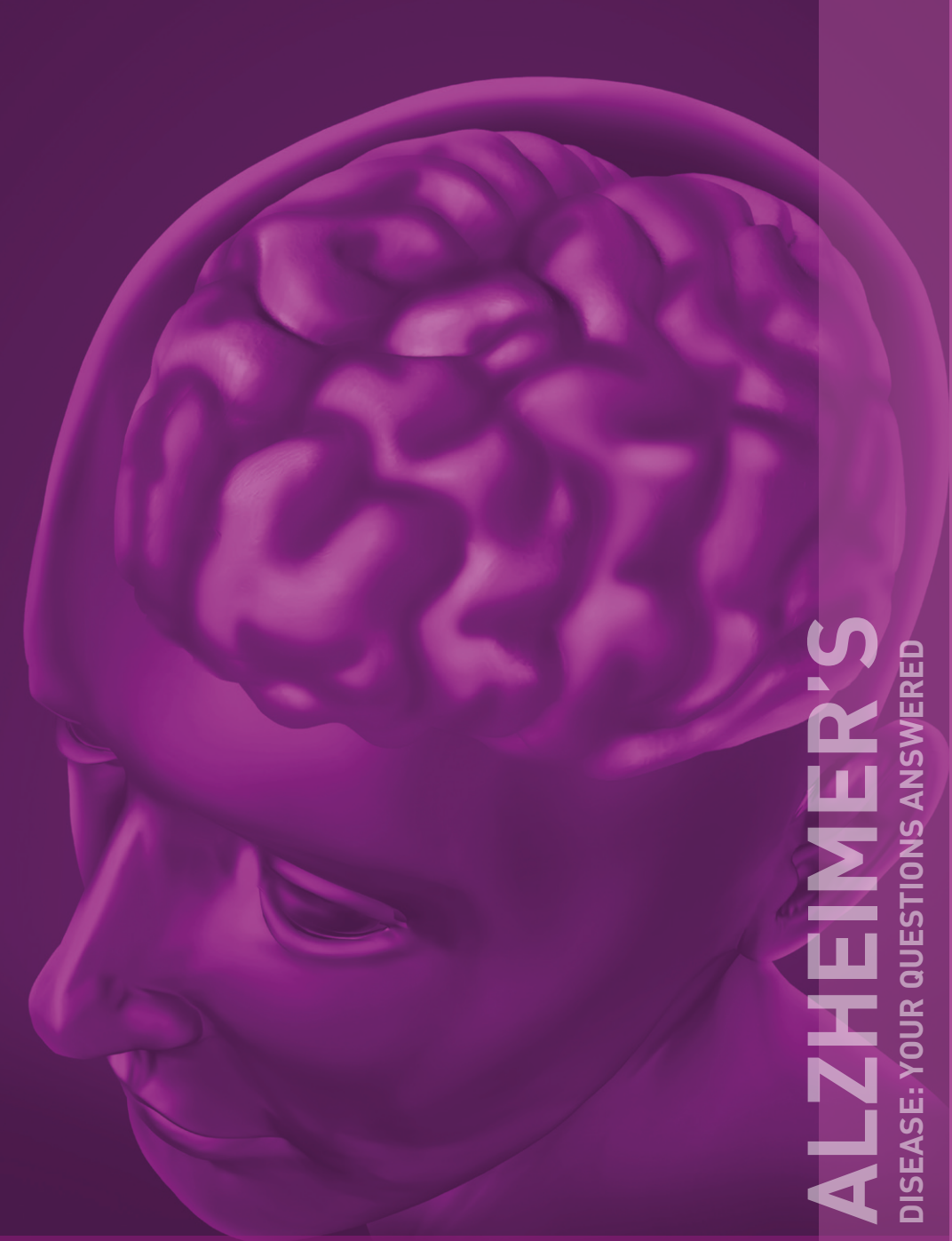
Rather than calling Alzheimer's a genetic disease, it is more accurate to say that it carries a genetic risk. Genetic diseases are generally inherited from one or both parents and inevitably emerge when the relevant conditions are met. Except for an early-onset group, Alzheimer's patients do not fit this pattern; genetic risk becomes evident when combined with other factors.

Research into Alzheimer's genetics suggests links to genes on 4 chromosomes: 1, 14, 19 and 21. The association varies with age of onset. Late-onset disease, usually beginning in the 70s or later, is linked to the APOE gene on chromosome 19. Variants of this gene may increase risk, have a neutral effect or reduce it. APOE2 reduces risk. A person inheriting APOE2 from both parents is considered highly protected against Alzheimer's. By contrast, inheriting the risk-increasing APOE4 from both parents creates a strong genetic predisposition. These characteristics can currently be tested. However, other factors influence genetic risk in this group. Relying only on a genetic analysis result may therefore be misleading. The existence of people who do not develop the disease despite a matching APOE type casts doubt on a definite genetic effect.

Early-onset disease is associated with the other three chromosomes. Chromosome 21, long linked to Down syndrome, is also associated with early-onset Alzheimer's. Chromosomes 1 and 14 are more closely linked to familial Alzheimer's, which appears dominantly in every generation.

In summary, Alzheimer's genetic risk relates primarily to age of onset and whether the disease is familial. Relatives of patients with these features have different genetic risks from relatives of late-onset patients. Genetic analysis may help establish the extent of that risk.





ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED

DOES MY PATIENT HAVE ALZHEIMER'S OR DEMENTIA?



This is one of the questions relatives ask most often. A major reason for the confusion may be that some doctors who see the patient say "dementia", while others say "Alzheimer's". Another is that when relatives research the condition, for example online, their descriptions may produce answers of dementia or Alzheimer's. Whatever the cause, people struggle to distinguish the two.

Dementia is the general name for cognitive decline caused by many different diseases. Its overall features include forgetfulness, reduced attention, language impairment, difficulties in daily functioning and behavioural problems. Causes may include a disease producing progressive loss of brain tissue, such as Alzheimer's; disease of the blood vessels supplying the brain; conditions increasing fluid within the brain; severe head injuries; brain inflammation; or reduced vitamin B12, which is important for the nervous system.

These causes produce different forms of the overall picture described above. Dementia due to Alzheimer's differs from dementia due to insufficient blood supply or increased brain fluid.

The important first step is to assess whether dementia symptoms exist and, if they do, investigate the disease or condition underlying them. The answer is that not every dementia is Alzheimer's, but every person with Alzheimer's has dementia.

Distinguishing dementia from Alzheimer's is useful because some other forms of dementia can be definitively treated. For example, measures addressing excess fluid in the brain or replacing low vitamin B12 levels can stop the progression of dementia caused by these conditions.



ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

DOES MY PATIENT HAVE ALZHEIMER'S OR DEPRESSION?

The relationship between Alzheimer's and depression is complex and can be considered from several perspectives. Each is a risk factor for the other. People with lifelong or long-term depression have been shown to have at least 2 times the Alzheimer's risk of those without depression. Conversely, severe depression has been reported in at least 25–40% of Alzheimer's patients, moderate depression in about 20%, and a few depressive symptoms in the remainder. Although Alzheimer's and depression are currently divided between neurology and psychiatry, both are expected to be recognised as neuropsychiatric diseases and studied on a common basis in the near future.

Besides being risk factors for each other, Alzheimer's and depression can always be confused because they share forgetfulness, everyday difficulties, behavioural problems and withdrawal. When these arise, family history is an important guide. Previous Alzheimer's in the family readily suggests that possibility; a family history of depression makes depression the first consideration. Whatever comes to mind first, remember that depression can occur in Alzheimer's and Alzheimer's risk increases with depression. The first source of help also matters. If a psychiatrist is consulted first, Alzheimer's may often be overlooked and depression diagnosed. It may unfortunately take 2–3 years to realise that this depression-like condition does not respond to medication. If a neurologist is consulted, some may dismiss both Alzheimer's and depression because these are outside their area of interest and regard the patient as normal. Careful observation at the first interview can guide the doctor. Most Alzheimer's patients deny problems because they are unaware of them. Otherwise, they generally speak comfortably, do not look tense and are willing to answer questions. Most have few or no somatic, or bodily, complaints. With depression, the patient does not want to speak, wants to leave immediately, does not answer questions and complains constantly.

Alzheimer's and depression can also coexist, particularly in people previously diagnosed with depression who are receiving treatment. Depression may also develop in older people without Alzheimer's. All these possibilities require joint assessment by neurology and psychiatry specialists.





ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

CAN SOLVING PUZZLES HELP PREVENT ALZHEIMER'S DISEASE?

The belief that puzzles help in Alzheimer's rests on certain information about risk and protective factors, summarised as follows:

Learning new things and using the brain intensively through education help form new connections and strengthen memory from childhood. It has therefore been suggested that keeping the brain constantly occupied might have a similar effect, with puzzles proposed as the most practical method.

Another basis for this idea is that educated people score higher on intelligence and cognitive tests than those without education.

Using memory while solving puzzles was thought to help in a disease such as Alzheimer's, which manifests through weakening memory.

However, these ideas and expectations are generally based on observations in people considered normal and often on well-intentioned wishes, because:
No research has shown that learning and strengthening brain connections in children work the same way in older people with a progressive brain disease. Alzheimer's begins under the influence of genetic mechanisms, with biological processes playing the leading role in irreversible cognitive losses. It is therefore logically incorrect to expect well-intentioned efforts to prevent or reverse genetic-biological processes.

Other factors explain why well-educated people perform better on intelligence and cognitive tests. Chief among them is that these tests were designed for educated people.

Puzzles usually test old knowledge rather than newly learned information. The main problem in Alzheimer's is not remote memory, which most patients retain, but recently learned information. It is natural and expected for a patient to remember an actor's name known for 40 years through many films, or the name of an object used throughout life at home. By contrast, many patients spend hours trying to answer questions about new information. This effort makes many people bored, disengaged from the puzzle and, if others insist they continue, resistant. It gradually creates conditions for depression.

For these reasons, the idea that puzzles are beneficial remains a well-intentioned expectation. However, when asked, "What can we do if we still want an activity of this kind?", sudoku may be the answer. It differs from ordinary puzzles: people must draw logical conclusions from given possibilities. Rather than fruitlessly straining memory, sudoku requires the brain to work through possibilities, with deductions changing at each stage. It engages attention and decision-making rather than memory.

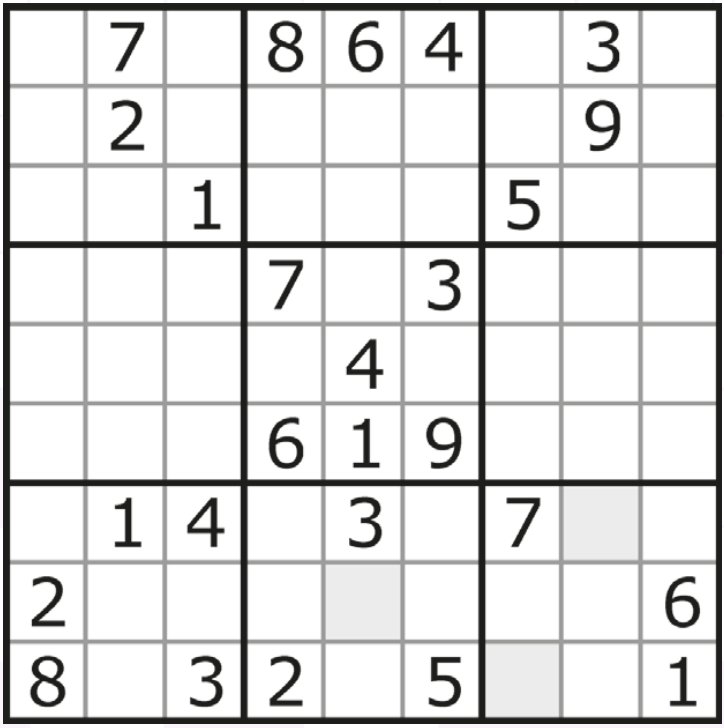
EXAMPLE 1:
CROSSWORD: ACROSS

1 – A disease caused by loss of hard bone tissue. 2 – A musical ensemble of four people – A tightly woven cotton fabric. 3 – A microscope glass – A medical word meaning "related to the mouth" – A bright red gemstone. 4 – Fire – An effeminate man. 5 – The registered trade name of a commercial or industrial organisation – Unable to see – A dog. 6 – Fine lace – A water massage pool. 7 – A large frame drum without jingles used in Turkish music – Despised or scorned. 8 – A musical note – Muscle weakness accompanying diseases such as typhoid. 9 – A slang term for a coarse, ill-mannered person – The famous ancient city east of Kars. 10 – Fine, solid particles produced by glands, especially the kidney – A pathological sound heard when examining the lungs – Shouting by a drunk or a ruffian. 11 – A freshwater fish living in cold, clear waters – A domesticated deer. 12 – A musical instrument – The authority responsible for security in cities.

DOWN

1 – Extreme fear of crowds – Dried fruit. 2 – A district of Istanbul – A horse coat colour between chestnut and grey. 3 – Complete, with nothing missing – Yield. 4 – A soldier without rank – Medicine or ointment – One of the three orders of ancient Greek architecture – A demonstrative adjective. 5 – Tormenting oneself – A relationship between two quantities. 6 – Rubble-stone facing at the foot of embankments to prevent them slipping – A period when an activity is temporarily suspended – A colour. 7 – Treating a disease with plant-derived medicines – The central part of the inner ear's bony labyrinth. 8 – A body style of old private cars – The abbreviation for kiloampere, a unit of current. 9 – The Western name for any poem set to music – Coquettish or coy. 10 – A district of Tokat – An old word meaning "to swear an oath" – Unmixed or pure. 11 – An archaic word for water – A charity distributing food to the poor. 12 – Stamp collecting – A well-known novel by Maxim Gorky.

Whether we examine the crossword across or down, almost every clue tests knowledge a 65-year-old acquired through education long ago, or concepts encountered and used throughout life. Some concern subjects outside the person's interests that they have never encountered. There are few, if any, clues about newly acquired knowledge from their own recent life. For example, across clue 2, "A musical ensemble of four people", is entirely cultural. The solver sees 7 empty squares. The likely answer is KUARTET. Many people do not know this even normally, so they remain stuck. Revealing a few letters does not help someone who does not know "kuartet". Suppose they learn it through this effort. Neither a healthy person nor one at risk of disease could forget this answer discovered by chance 2 hours later. Knowing it depends more on education in Western musical terminology than on having a disease. The second part of across clue 9, "The famous ancient city east of Kars", has 3 empty squares. The answer may be ANİ, but knowing it requires general education covering that topic. For an Alzheimer's patient, correctly recalling it is meaningful only if they visited the previously unknown Ani ruins within the last few days and can remember that visit when encountering the clue. Crosswords do not test newly learned information; more precisely, they are not constructed around new information. Further examples could be given.



EXAMPLE 2:
SUDOKU

Sudoku is a game consisting of one large square containing 9 smaller squares, each with numbers from 1 to 9. Some numbers are given and others hidden. The aim is that no number repeats within a square or in any horizontal or vertical sequence across the squares. A person working on the example above need not recall anything or strain memory; only basic attention must be preserved. Many Alzheimer's patients retain basic attention except in advanced disease. Crossword solving requires education, and ordinary education is not enough for many clues. For sudoku, even knowing what numbers mean is unnecessary: recognising their shapes is enough. Looking from left to right, we see 9 in the upper corner of the top-left square. This means we cannot use 9 again in that square. In the adjacent square, we again see 9, this time in the middle column, so 9 cannot be used there either. The next square has no 9, so we may place a 9 there—but not in the same row as the other 9s. Looking across, 9 belongs at the bottom. Looking down, however, there is a 9 in the far-right column and in the two columns beside it. We therefore put 9 in the middle column of the top-right square.

During this process, we became engaged in an exciting search without tiring our memory. Most likely, we were not bored as we might be by unanswered crossword clues. We can also stimulate memory indirectly by strengthening attention.



ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED

WHAT MEDICINES ARE CURRENTLY USED TO TREAT ALZHEIMER'S DISEASE?

Medicines generally believed to improve brain nourishment include nootropics and ginkgo products, which are thought to help memory and attention difficulties.



Medicines currently used for Alzheimer's can be grouped into three categories according to their contents and rationale:

Medicines intended to supply or increase the use of chemicals believed to matter in the disease's cause and whose balance changes in the brain. These include medicines countering the reduction of acetylcholine, a substance closely related to memory, by increasing its use in the brain, and medicines addressing the effects of glutamate, which has been shown to accelerate cell death. They target effects such as memory, language, attention and orientation difficulties.

Medicines generally believed to improve brain nourishment include nootropics and ginkgo products, which are thought to help memory and attention difficulties.

Medicines for depression and behavioural disorders. Depression and various behavioural disorders frequently occur during Alzheimer's.



HOW DO ALZHEIMER'S MEDICINES WORK?

ALZHEIMER'S
DISEASE: YOUR QUESTIONS ANSWERED



A general observation about these medicines is that those in category 1 above have limited, time-bound effects. Recent research has questioned the therapeutic value of those in category 2 (source). Medicines for behaviour in the third category are beneficial and can have long-lasting effects.

Medicines labelled "used to treat Alzheimer's disease" belong to category 1. They slow progression and limit its effects. Research shows these benefits, but they last no more than 2 years.

Recent research on medicines in the second category reports no demonstrable effects.

The third category includes medicines for depression and various behavioural disorders. Most are used appropriately for these purposes.



ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED

IS THERE A DIET TO PREVENT ALZHEIMER'S DISEASE OR SLOW ITS PROGRESSION?

Because special diets are commonly recommended for many diseases, particularly heart and metabolic disorders, there is similar interest in Alzheimer's. The lack of a definitive cure and interest in diet have also made this scientifically interesting. Different sources offer recommendations even though no anti-Alzheimer's diet can be identified. These fall into two main groups:

Recommendations intended to delay cell death or slow it once disease has begun. They include foods rich in vitamins B, E, C and A or vitamin tablets, and, for those who choose it, a small amount of red wine daily, which has been shown to have this property. Among B vitamins, B12 is referred to as a nerve growth factor and helps counter nerve damage. The other vitamins listed mainly increase bodily resistance and are said particularly to provide resistance to cancer. Vitamins E, C and A are reported to be more effective together. Foods rich in these vitamins are shown in the following tables.



Some foods rich in vitamin E

- Almonds
- Hazelnuts
- Pine nuts
- Popcorn
- Tahini
- Pumpkin seeds
- Bell peppers
- Curly lettuce
- Mint
- Long green peppers
- Celery leaves

Foods rich in vitamin A and beta-carotene

- Egg yolk
- Liver
- Milk
- Spinach
- Carrots
- Green peppers
- Apricots
- Green vegetables
- Tomatoes
- Oranges, grapefruit

Foods richest in vitamin C

- Rose hips
- Parsley
- Garden cress
- Rocket
- Red cabbage
- Strawberries
- Cauliflower
- Spinach
- Long green peppers
- Citrus fruits (oranges, mandarins, grapefruit, lemons)

Vitamin B1–rich foods

- Bulgur pilaf
- Beef
- Fish
- Lamb kidney, heart and liver
- White cheese
- Milk
- Egg yolk

Vitamin B2–rich foods

- Veal liver
- Veal kidney
- Chicken liver
- Dill
- Tarhana soup
- Chilli flakes

Vitamin B12–rich foods

- Oats, rye, bran bread
- Wholewheat bread
- Okra
- Tarhana soup
- Peanuts
- Pine nuts

Vitamin B6–rich foods

- Hot chilli flakes
- Long green peppers
- Celery leaves
- Walnuts
- Dill
- Flaxseed
- Tahini
- Wholewheat bread



MEDİTERRANEAN Diet

In recent years, vascular risk factors—hypertension, diabetes and high cholesterol—have been added to the risk factors for Alzheimer's. They have been shown to accelerate brain cell death mechanisms and facilitate the onset and progression of the disease (source). Diets recommended against these risks have therefore also begun to be recommended for Alzheimer's. Foremost is the Mediterranean Diet, based on olive oil, grains, walnuts, hazelnuts, fruit, vegetables and fish, with restricted red meat.





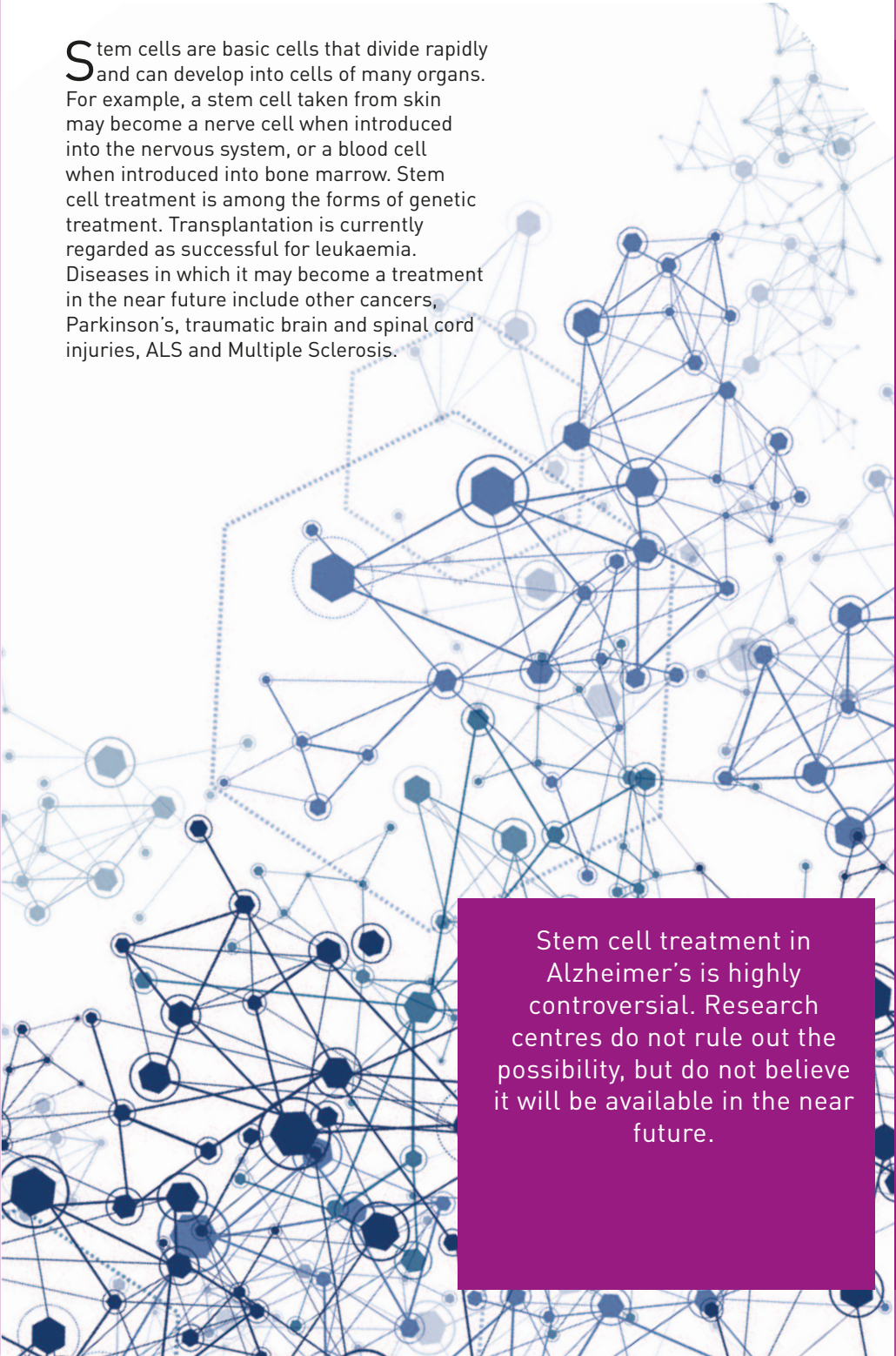
ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED

WHAT IS THE STATUS OF STEM CELL TREATMENT FOR ALZHEIMER'S DISEASE?

WHAT IS THE STATUS OF STEM CELL TREATMENT FOR ALZHEIMER'S DISEASE?

Stem cells are basic cells that divide rapidly and can develop into cells of many organs. For example, a stem cell taken from skin may become a nerve cell when introduced into the nervous system, or a blood cell when introduced into bone marrow. Stem cell treatment is among the forms of genetic treatment. Transplantation is currently regarded as successful for leukaemia. Diseases in which it may become a treatment in the near future include other cancers, Parkinson's, traumatic brain and spinal cord injuries, ALS and Multiple Sclerosis.



Stem cell treatment in Alzheimer's is highly controversial. Research centres do not rule out the possibility, but do not believe it will be available in the near future.



ALZHEIMER'S DISEASE: YOUR QUESTIONS ANSWERED

HOW SHOULD PEOPLE WITH ALZHEIMER'S BE TREATED?

Alzheimer's impairs memory, attention and language while also distorting perception of oneself and one's surroundings, creating conditions for behavioural disorders. Patients cannot retain events, attend to what is said or fully explain their difficulties. They may also depart from social norms and rules, be unable to assess or control their behaviour, and often regard it as normal. Relatives and caregivers therefore need to know certain points when communicating with patients.

These points are summarised below.

Try to empathise with the patient!
First, ask yourself: "If I had Alzheimer's rather than them, what care would I expect? Would I want love, understanding and patience, or indifference and rudeness?"

Be patient!
The patient can easily become confused about what you explain or ask. If this happens, try different ways of communicating your requests. Never use physical force. Even well-intentioned actions may be perceived as coercion.

Be understanding and do not argue!
Your patient may insist it is 1958 or that you are their mother. If you say it is 2013 and their mother died long ago, they may first be surprised. If the disease is not advanced, realising their mistake may upset them; if it is advanced, they may insist they are right and become angry because they do not understand your response. Communication fails in either case. Difficulty recording information means they will not retain the facts even if you correct them. Correcting mistakes and arguing about them are therefore unhelpful. Try to talk comfortably without introducing questions of time or place. If they





speak about the past as though it were today, join and continue that conversation. Do not disrupt its continuity. Make occasional jokes.

Do not force the patient to do things they dislike. Many relatives think crosswords help and press patients to spend hours solving them. As explained in the relevant section, their benefit is unproven and lacks a logical basis. Spending this time outdoors or at home listening to music or watching interesting things will be more stimulating.

Do not allow patients to take medicines unsupervised. Many in mild-to-moderate stages may claim they can take them regularly, and this may even be true for some. However, as a general principle, self-administering medicines is inadvisable for people with forgetfulness and reduced attention. Some also say they have taken them while hiding them under carpets or throwing them away.

Do not discuss the possibility of a care home in front of patients. The losses experienced



during Alzheimer's make them more emotional and sensitive than before. Do not voice predictions about their future or care home options in their presence. Some who hear this may believe you want them to die or are planning to get rid of them.



ALZHEIMER'S

DISEASE: YOUR QUESTIONS ANSWERED

SOME ONLINE RESOURCES ON ALZHEIMER'S DISEASE

- www.npistanbul.com
- www.e-psikiyatri.com
- www.noroloji.org.tr
- www.alzheimer.gen.tr
- www.hekimce.com
- www.saglikbilgisi.com



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