

# What Causes The Symptoms Of Dementia?

Despite the rise in dementia diagnoses in recent years, understanding the disease, its causes and effects on the brain, are still in its relative infancy. This is not due to lack of compassion, research is ongoing and in-depth, but the brain is a complex organ and understanding how it works, and more importantly, how dementia affects it will take time. However, roads have been made, especially with the introduction of modern brain scans that allow researchers to study the brain whilst a person is experiencing the symptoms, not after death.

Most types of dementia occur with a build-up of abnormal proteins on the brain which causes shrinkage of brain tissue as the brain cells degenerate and die. However, in each type of dementia the abnormal proteins are different, and occur on different parts of the brain, thus causing different types of early symptoms (related to the section of the brain affected). But, as the dementia progresses, more of the brain is affected and the symptoms of each type of dementia begin to become similar to each other.

## Vascular Dementia

Vascular dementia is caused by a number of different diseases of the blood supply to the brain. For example, it may be caused by a huge stroke, which cuts off the blood supply to the brain, this in turn means that large sections of the brain can die. This causes symptoms related to issues with concentrating, planning, thinking and memory. Physically, people may experience problems with their speech or be left with extreme weakness down one side of their body.



Similarly, vascular dementia may also be caused by a series of mini-strokes, which creates a small section of dead brain tissue (infarct). Symptoms are related to the section of brain tissue damaged. For example,

issues with episodic memory (memory of autobiographical events such as times and places) are caused by an infarct in the hippocampus area of the brain.

### **Alzheimer's Disease**

For a person living with Alzheimer's, the first area of their brain to be damaged is the hippocampus and its connected structures. This means that they will struggle to form new memories, may find it difficult to recall a conversation they have just had, or remember a very recent event, such as what they had for breakfast that morning. However, long-term memory, such as childhood memories, are still there. This is because whilst the hippocampus is damaged early on, the cortex (which is responsible for long-term memory) is unaffected until the disease has progressed considerably.

The amygdala (a section of the brain related to experiencing emotions) is also affected at a later stage of Alzheimer's. So a person living with Alzheimer's may not be able to remember the facts of an event that happened recently but they are able to recall their emotional response to the situation.

As the disease spreads, more of the brain is damaged and additional symptoms will occur related to that deterioration. For example, damage to the left hippocampus may cause someone to struggle to find the right word for something, as this part of the brain is responsible for language. Or deterioration of the visual system in the temporal lobes can make it hard for a person living with Alzheimer's to recognise familiar faces or objects.



### **Frontotemporal Dementia**

This type of dementia causes the frontal and/or temporal lobes to shrink, which relate to a person's language and behaviour. However, the pattern of the damage will determine the type of frontotemporal dementia a person has, which, in turn, will affect the symptoms they present. For example, if the upper middle surfaces of the frontal lobes are damaged then a person may become withdrawn and lose motivation. This is known as behavioural frontotemporal dementia. Similarly, if the front of the left temporal lobe begins to decline, then the person may struggle to find the name for a simple object. This is called semantic dementia.