

This information sheet provides an overview of a type of dementia known as vascular dementia. In this information sheet you will find:

- An overview of vascular dementia
- Types and symptoms of vascular dementia
- Risk factors that can put someone at risk of developing vascular dementia
- Information on how vascular dementia is diagnosed and treated
- Information on how someone living with vascular dementia can maintain their quality of life
- Other useful resources

What is dementia?

Dementia is an overall term for a set of symptoms that is caused by disorders affecting the brain.

Someone with dementia may find it difficult to remember things, find the right words, and solve problems, all of which interfere with daily activities. A person with dementia may also experience changes in mood or behaviour. As the dementia progresses, the person will have difficulties completing even basic tasks such as getting dressed and eating.

Alzheimer's disease and vascular dementia are two common types of dementia. It is very common for vascular dementia and Alzheimer's disease to occur together. This is called "mixed dementia."

What is vascular dementia?¹

Vascular dementia is a type of dementia caused by damage to the brain from lack of blood flow or from bleeding in the brain. For our brain to function properly, it needs a constant supply of blood through a network of blood vessels called the brain vascular system. When the blood vessels are blocked, or when they bleed, oxygen and nutrients are prevented from reaching cells in the brain. As a result, the affected cells can die.

When brain cells die from lack of blood flow or from bleeding, then stroke symptoms can result. Vascular dementia can be a consequence of stroke. Stroke symptoms may include paralysis and loss of speech. The location and size of cell death determines how the thinking and physical functioning of the individual will be affected. Conditions such as cerebral small vessel disease that narrow or cause long-term damage to the blood vessels in the brain can also lead to vascular dementia.

¹ This content is from experts from the Heart and Stroke Foundation 2016 Stroke month report Mind the Connection.
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Someone with vascular dementia may notice changes in their ability to make decisions, plan, or organize as their first symptoms. Other changes may include difficulties with movement, such as slow gait and poor balance. Symptoms tend to appear slowly, and specific impairments may occur in steps, where the person's abilities can deteriorate, stabilize for a time and then decline again.

Types of vascular dementia

Different kinds of brain blood vessel and cardiac conditions can lead to strokes and other kinds of vascular brain damage. This brain damage may also result in vascular dementia.

To find out the cause of the blood vessel problem in the brain, doctors will ask questions and do tests for conditions like atherosclerosis (cholesterol build up), arteriosclerosis (hardening of the small arteries of the brain, commonly caused by high blood pressure), and others.

Two types of vascular dementia include **subcortical dementia** and **cerebral amyloid angiopathy**.

Subcortical dementia

Subcortical dementia is caused by small vessel disease, a condition in which the small vessels in the brain become stiff and twisted, resulting in reduced blood flow to the brain. Small vessel disease often damages the nerve fibers that carry signals around the brain, known as white matter. Small vessel disease tends to damage deeper areas of the brain.

Cerebral amyloid angiopathy

Often occurring with Alzheimer's disease, cerebral amyloid angiopathy occurs when there is an accumulation of amyloid in the brain blood vessels. Amyloid is the same protein that can accumulate outside of cells in Alzheimer's disease, forming plaques that disrupt brain function. When amyloid accumulates inside the blood vessels, strokes or bleeding may happen which can result in symptoms of dementia.

Risk factors for vascular dementia²

Stroke

Stroke (also known as a cerebrovascular accident or CVA) is now understood to be a common cause of vascular dementia. A stroke occurs when blood flow in an artery stops, either because the artery is blocked (an ischemic stroke) or bursts (a hemorrhagic stroke). The part of the brain supplied by the artery is then deprived of oxygen and nutrients, damaging brain cells and the functions they control. If blood flow is not restored within minutes, the damaged neurons start to die.

Having a stroke more than doubles the risk of developing dementia. Strokes can be large or small, and can have a cumulative effect (each stroke adding further to the problem).

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Can you recognize the symptoms of a stroke? A stroke can:

- Affect your ability to walk
- Cause weakness in your arm or leg
- Cause you to slur your speech
- Cause changes in your behaviour, such as having emotional outbursts
- Impact your cognitive abilities. You may experience difficulty with:
 - Memory and abstract thinking
 - Conversation – both listening and speaking
 - Processing visual information

Recognizing the signs of stroke and acting quickly can make a difference in recovery and in lowering the risk of dementia. The Heart and Stroke Foundation's FAST campaign helps Canadians recognize the signs of stroke.

LEARN THE SIGNS OF STROKE

FACE is it drooping?

ARRMS can you raise both?

SPEECH is it slurred or jumbled?

TIME to call 9-1-1 right away.

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Covert stroke

Sometimes strokes may have subtle symptoms that go unrecognized until a brain scan is done. These strokes are called "covert."

Covert strokes occur when a small blood vessel in the brain becomes permanently blocked. While overt strokes have recognizable symptoms such as weakness and speech difficulties, covert strokes can occur silently without any visible symptoms. Since covert strokes don't cause immediate physical changes that are obvious, most people who have had this type of stroke don't know it.

Can you recognize the subtle symptoms of a covert stroke? A covert stroke can:

- Affect changes in memory as you get older
- Weaken the parts of the brain responsible for:
 - Processing information
 - Remembering recent events
 - Word-finding
 - Multi-tasking
 - Problem-solving
 - Decision-making
 - Reasoning

Sometimes vascular dementia is diagnosed after a brain scan shows covert strokes, even though there is no known history of a stroke. Dementia can be a symptom of this kind of brain damage in both overt strokes, i.e., where symptoms such as weakness, and speech difficulties are present, as well as covert strokes, ones that occur silently without symptoms.

Transient ischemic attack

Transient ischemic attacks (TIAs), sometimes called a “warning stroke,” are caused by a small clot that briefly blocks an artery. TIAs and strokes have similar symptoms, but TIAs only last a few minutes or hours and cause no lasting damage.

TIAs are an important warning that a more serious stroke may occur. Anyone who experiences a TIA should seek medical help immediately.

Other risk factors for vascular dementia

Risk factors are characteristics of people, their lifestyle, environment, and genetic background that increase the likelihood of getting a disease or injury. Some risk factors are *modifiable*, meaning that they can be changed. Smoking and high blood pressure are good examples of modifiable risk factors. Other risk factors are *non-modifiable*, or unchangeable, such as age or a family history of heart problems. In general, treating the risk factors for stroke significantly reduces the risk of vascular dementia.

How can you lower your risk of vascular dementia? You can lower your risk of vascular dementia by managing these risk factors:

- High blood pressure
- Smoking
- Physical inactivity
- Stress
- Sleep apnea
- Unhealthy weight
- High cholesterol
- Atrial fibrillation (Afib)
- Diabetes
- Heavy alcohol intake and drug abuse
- Unhealthy diet

High blood pressure (or hypertension) is the single most important modifiable risk factor for stroke and vascular dementia. High blood pressure can be managed through physical activity, eating well and by taking the right medication. Medications may also help control other risk factors such as diabetes, cholesterol and heart disease.

By adhering to a healthy lifestyle, vascular dementia can be prevented, delayed or slowed down. For more information on how to lead a healthy lifestyle please refer to the “Maintaining quality of life” section.

How is vascular dementia diagnosed?

There is no one specific test that can diagnose vascular dementia. If vascular dementia is suspected, a number of physical and cognitive tests will most likely be performed. A combination of the physical and cognitive test results, along with a detailed medical history, provides doctors with the evidence needed to make a diagnosis.

- **Physical tests:** Your doctor will need detailed information about the person’s symptoms, medical history and current health and lifestyle. The doctor will also conduct a number of tests that will measure the person’s blood pressure, cholesterol levels, thyroid function and vitamin levels.
A number of brain imaging tests may also be required, such as a computed tomography (CT) and a magnetic resonance imaging (MRI) scan, to see if there is evidence of a recent stroke or changes to brain’s blood vessel, such as bleeds.
- **Cognitive tests:** A doctor or another specialist, such as a neuropsychologist, may conduct some pen and paper tests, such as the Montreal Cognitive Assessment (MoCA), which measures judgement, planning, problem-solving, reasoning, and memory.

Living with vascular dementia

All people with dementia are individuals with unique preferences, values and life experiences. The approach to their care should honour these preferences. This is called person-centred care. Person-centred care is a personalized approach to care, where the person with dementia is actively involved in all decisions concerning their health.

While there are currently no medications that can reverse brain damage, there are medications available that can help manage some of the symptoms of dementia. When using medications to manage the symptoms of vascular dementia, consider the following:

- Physicians may recommend the use of medications called cholinesterase inhibitors, particularly if there is evidence of mixed dementia with components of vascular dementia and Alzheimer’s disease.
- Sometimes different medications need to be tried before finding one that helps. While medications are not always an appropriate option for everyone, it is important to talk to a family physician to see if this is an option for you or the person with vascular dementia.
- If symptoms of vascular dementia are a result of a stroke, medications may be prescribed to reduce the risk of future strokes.
- Some underlying medical conditions can be managed with medication and by making healthy choices. By controlling these medical conditions it may be possible to slow down the progression of the dementia.

Interventions

If you have vascular dementia, these strategies can help you make the most of your existing abilities to make up for physical and cognitive changes:

- Being physically active helps improve movement, speech and the ability to participate in daily activities
- If you're experiencing symptomatic stroke, physical and occupational therapy can help with your stroke recovery
- Take medications, as indicated, to treat risk factors for stroke

All of these management strategies and interventions have to be personalized, and will require reassessment as your abilities change.

Maintaining quality of life

There are many things that a person can do to live well with dementia. Even small healthy changes can help maintain quality of life and may slow down the progression of the dementia. The following are things that a person with dementia can do to improve their brain health:

- **Participate in social activities:** It is very important that people with dementia remain active members of their community. Volunteering, getting together with friends and keeping up with usual activities, such as attending swimming classes or singing in a choir, are all examples of ways to remain socially active.
- **Make healthy food choices:** Healthy eating can reduce the risk of heart disease, stroke, and diabetes. Making healthy food choices can also help maintain brain function and slow down memory decline. Eat more fruits and vegetables, choose healthy fats and foods high in fibre, and eat less added sugar. Stay hydrated and make sure your plate has a variety of foods and in many different colours!
- **Be physically active:** Physical activity can help reduce the risk, delay the onset and slow down the progression of dementia. The type of activity that works best for you will depend on your fitness level, current activity level and overall health. Consider:
 - Making physical activity part of your daily routine
 - Choosing activities and sports that you enjoy
 - Starting where you can and setting reasonable goals
 - Consulting your doctor about the kinds of physical activity that might be right for you or if you have specific health concerns
- **Challenge your brain:** Engage in activities that will challenge your brain and that will keep you involved. It is important that these activities are ones that you have never tried before, such as:
 - Learning a new language or how to play a musical instrument
 - Playing games such as word puzzles or doing jigsaws
 - Doing a familiar task in a new way, such as brushing your hair with your opposite hand
 - Reading a book and discussing it with a friend
 - Enjoying cultural activities like going to plays, museums and concerts

For more information on what you can do to maintain your brain health, please visit www.alzheimer.ca/brainhealth

Dealing with depression

Despite your best efforts, it can be easy to become sad and depressed about the changes you see in your abilities, or in the abilities of the person you are caring for. It is important to talk to your healthcare provider if depression is a concern. Depression can worsen the symptoms of dementia and if you are a caregiver, it can have an impact on your own health.

Remember, it is normal to experience a range of emotions throughout the progression of the disease. However, depression can be managed. Talk to your healthcare provider about available support in your community.

Useful Resources:

Whether you are experiencing vascular dementia or another form of dementia, your local Alzheimer Society is there to provide information and support.

Visit the Alzheimer Society's website at www.alzheimer.ca or contact your local Alzheimer Society.

- For more information about dementia risk factors, visit: www.alzheimer.ca/riskfactors
- For more information about the risk factors of stroke risk, visit:
 - **Condition risk factors:** www.heartandstroke.ca/stroke/risk-and-prevention/condition-risk-factors
 - **Lifestyle risk factors:** www.heartandstroke.ca/stroke/risk-and-prevention/lifestyle-risk-factors
 - **Risk factors you can't control:** www.heartandstroke.ca/heart/risk-and-prevention/risk-factors-you-cannot-change
- For more information on heart disease and stroke, contact the Heart & Stroke Foundation of Canada: www.heartandstroke.ca.

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Alzheimer *Society*



Alzheimer Society of Canada
20 Eglinton Avenue West, 16th Floor, Toronto, Ontario M4R 1K8
Tel: 416-488-8772 1-800-616-8816 Fax: 416-322-6656
E-mail: info@alzheimer.ca Website: www.alzheimer.ca

Facebook: www.facebook.com/AlzheimerCanada Twitter: www.twitter.com/AlzCanada