

## Peripheral Vascular Disease

### Smoking affects your blood vessels

There are over 7000 different types of chemicals in cigarette smoke.<sup>1</sup> With every puff, many of these chemicals pass through your lungs into your bloodstream. They go everywhere your blood flows.<sup>2</sup>

Chemicals from smoke affect your blood, making it thicker, stickier and more likely to form clots. They cause fatty material to build up on your blood vessel walls faster. Over time, this slowly narrows and blocks your blood vessels making it difficult for your blood to circulate.<sup>2</sup>

### What is PVD?

Peripheral vascular disease (PVD) refers to diseases of the arteries (the large blood vessels), except for those in the heart and brain.<sup>3</sup> It also may be called peripheral arterial disease (PAD).<sup>2,3</sup> It occurs when the arteries that carry blood to your legs or arms become partially or totally blocked by the build-up of fatty material on your artery walls.<sup>2-4</sup>

### Symptoms of PVD

PVD mainly affects blood circulation to the legs and feet.<sup>3,4</sup> Many people with PVD do not have any symptoms (asymptomatic PVD).<sup>5</sup> For people who have PVD with symptoms, the most common is pain in the legs, particularly the calves, when walking. The pain usually goes away within several minutes after stopping exercise.<sup>2,5</sup>

Other symptoms may include:

- numbness, weakness or a feeling of heaviness in the legs with no pain<sup>6</sup>
- hair loss on your feet and legs<sup>7</sup>
- poor nail growth (brittle toenails)<sup>8</sup>
- cool or shiny skin on your legs, or cold or numb toes<sup>6,7</sup>
- a change in the colour of your legs<sup>4,8</sup>
- a weak pulse in your legs or feet.<sup>7,8</sup>

Symptoms of more advanced PVD include:

- sores or ulcers on your toes and feet that do not heal properly<sup>4,7</sup>
- pain in the legs while resting<sup>4,7</sup>
- pain in the feet or toes while resting, especially when lying flat.<sup>5</sup>

These symptoms can be distressing as they can involve constant pain.<sup>5,9</sup>

## Severe PVD

In severe cases of PVD, there is not enough blood supply to the edge of the feet or toes. The foot becomes purplish, cold and painful. Wounds on the feet heal poorly and ulcers form easily.<sup>7, 10</sup> Feet in this state can progress to gangrene, which is when tissue becomes blackened and dead.<sup>5, 7, 11</sup> It may become necessary for a surgeon to cut off affected toes, feet or legs as a last resort to relieve pain (amputation).<sup>12, 13</sup> Only a very small percentage of people with PVD end up needing amputation, but continuing to smoke is a major risk factor for the loss of feet and limbs.<sup>9, 11, 14</sup>

People who have PVD often die from heart disease or stroke rather than PVD, as these diseases are caused by similar processes.<sup>3, 5, 14, 15</sup> PVD most often occurs in people aged over 40 years old.<sup>5</sup>

## Smoking and PVD

Smoking is a major risk factor for PVD.<sup>5, 16</sup> Over 80% of people with PVD are smokers or ex-smokers.<sup>11, 14</sup> Smokers are around three times more likely to develop PVD than people who have never smoked.<sup>5, 12, 17</sup>

On average, smokers develop PVD about 10 years earlier in life than people who have never smoked.<sup>5</sup> The more cigarettes someone has smoked over time, the worse their PVD tends to be.<sup>5</sup> People with PVD who smoke are likely to worsen their symptoms, and increase their risk for amputation.<sup>5, 9</sup> Smoking also reduces the success of treatments for PVD.<sup>18</sup>

The processes that lead to PVD start early. Every puff of cigarette smoke contains huge amounts of chemicals called oxidants. They play an important role in the build-up of fatty deposits in arteries, as well as in causing cancer and lung disease.<sup>2</sup> Research shows that even young smokers in their teens and early twenties have more fatty deposits in the main artery of their heart than non-smokers of the same age.<sup>2</sup>

Other risk factors for PVD include diabetes, high blood pressure, and high cholesterol levels.<sup>5, 9</sup> If you have more than one of these risk factors, your risk of PVD increases.<sup>5</sup> Stopping smoking may also help control some of these other risk factors as it improves good cholesterol levels and reduces your risk of developing Type 2 diabetes in the long term.<sup>16, 19, 20</sup>

## Stopping smoking reduces your risk of PVD

Stopping smoking will reduce your risk of developing PVD, but ex-smokers are still more likely to develop PVD than people who have never smoked.<sup>11, 17, 21</sup> However, the longer you have quit, the lower your risk of developing symptoms of PVD.<sup>11</sup>

For people who develop symptoms of PVD, quitting slows down the worsening of the disease within one to five years.<sup>11</sup> Compared to smokers, people who quit have less severe pain when walking and are less likely to develop pain at rest.<sup>2, 11</sup> They live longer, respond better to treatment, and are less likely to require surgery or amputation.<sup>11, 22</sup>

It is necessary to quit completely as smoking even one or two cigarettes a day immediately affects your circulation and can affect treatment.<sup>2</sup>

Treatment for advanced PVD may include surgery to restore blood flow to the arteries.<sup>5, 11</sup> Stopping smoking before or even at the time of surgery for PVD improves the chance of its success.<sup>11</sup> Quitting smoking for at least four weeks before surgery reduces the risks for wound infection and other serious problems during and after surgery.<sup>23, 24</sup> The earlier you quit before surgery, the greater your chances of a good recovery.<sup>24</sup>

## Abdominal aortic aneurysm (AAA)

Another major form of PVD affects the main artery leading from the heart (the aorta). The lower part of the aorta is called the abdominal aorta, and supplies blood to your abdomen, pelvis and legs. When the wall of the abdominal aorta is weakened it can become abnormally wider or balloon outwards. This is called an abdominal aortic aneurysm (AAA).<sup>3, 25</sup> Abdominal aortic aneurysms are life-threatening if they split open and bleed and deaths are common.<sup>2, 3, 26</sup>

People who smoke are five times more likely to develop AAA than people who have never smoked.<sup>26</sup> Even smoking five cigarettes per day doubles your risk of AAA.<sup>26</sup> Smoking is the most important risk factor for AAA.<sup>11, 27</sup>

Stopping smoking reduces your risk of developing AAA, and over time your risk becomes close to that of a non-smoker.<sup>26</sup> Worsening of symptoms is slower in former smokers with this disease than in smokers.<sup>11</sup> Stopping smoking is one of the few ways you can reduce your risk for this potentially fatal disease.<sup>2, 11</sup>

## When you quit

As soon as you stop smoking your body begins to repair itself. These are some of the typical benefits of quitting:

- Within one day the level of carbon monoxide in your blood drops back to normal.<sup>19</sup> Your blood can supply oxygen more easily to your heart and muscles.<sup>2, 28</sup>
- After four weeks your body is better at fighting off infections in cuts and wounds.<sup>24, 29</sup>

- After eight weeks your level of good cholesterol will have increased - this helps slow down the build-up of fatty deposits on your artery walls.<sup>19, 20</sup>
- After three months your blood is less thick and sticky and your blood flow will have improved.<sup>19, 30, 31</sup>
- Within one year your lungs are healthier and you'll be breathing easier than if you'd kept smoking.<sup>11, 32, 33</sup>
- Within two to five years there is a large drop in your risk for heart attack and stroke.<sup>11</sup>
- After 10 years your risk for abdominal aortic aneurysm (AAA) is around half that of someone who continues to smoke.<sup>26</sup>
- After 15 years your risk of heart attack and stroke is close to that of someone who has never smoked.<sup>11</sup>
- After 20 years your risk of developing symptoms of PVD, such as pain when walking, are much lower than someone who continues to smoke.<sup>11, 34</sup>
- After 25 years your risk of developing AAA is close to that of someone who has never smoked.<sup>26</sup>

## Who can I talk to for more information?

- Your **doctor** is an important source of information, particularly if you have an illness, or you are taking any other medicines.
- Your **pharmacist** can give you advice about stopping smoking.
- **Quitline 13 7848**: The Quitline is a friendly, confidential telephone service. Your Quitline counsellor is trained to listen carefully and provide practical advice just for you. You can call the Quitline for the usual cost of a local call from your phone or ask us to call you at no cost (Quitline callback). Talking with a Quitline counsellor can increase your chance of stopping smoking successfully.<sup>35, 36</sup>

## Online resources

**Quit website** [www.quit.org.au](http://www.quit.org.au). Build your personal quit plan with easy-to-find information suited to you. You'll find tips, distractions, a cost calculator and stories from ex-smokers.

**QuitCoach** [www.quitcoach.org.au](http://www.quitcoach.org.au). QuitCoach is a free web-based computer program that asks you questions and helps you quit by giving free personal advice tailored to your needs.

**QuitTxt** provides regular SMS messages including tips and encouragement to help you keep on track throughout your quit attempt. To begin, all you need to do is register and complete a brief questionnaire at [www.quit.org.au/quittxt](http://www.quit.org.au/quittxt).

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