

# How does pulmonary arterial hypertension (PAH) affect the heart and lungs?

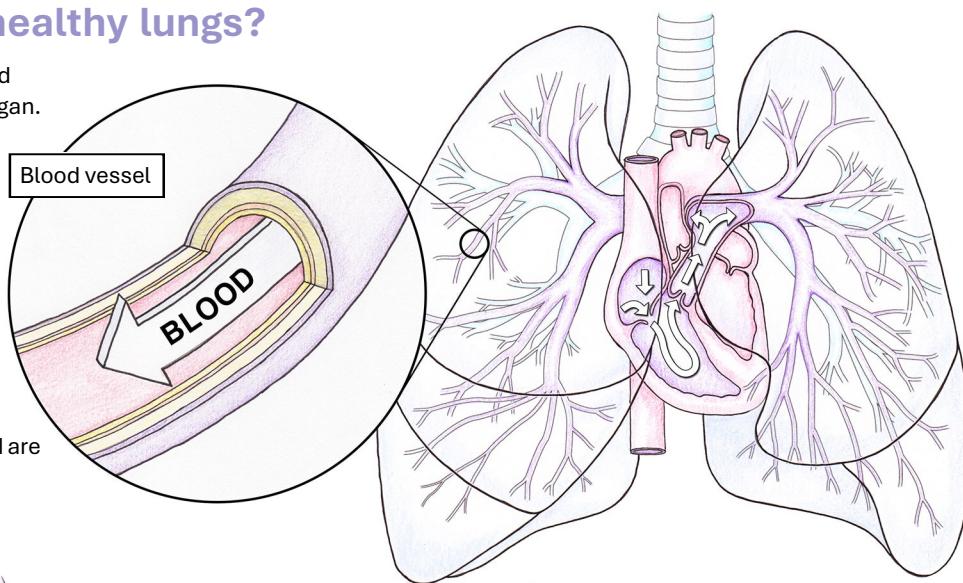
## What happens in healthy lungs?

For our bodies to function optimally, we need oxygen to be delivered to each and every organ.

Our lungs provide oxygen to the red blood cells, which then deliver it to the rest of the tissues and organs. To achieve this, blood flows through a network of vessels which distribute the blood throughout the lungs.

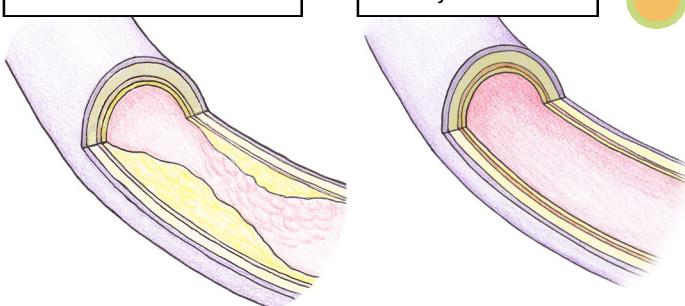
These vessels are lined on the inside with cells known as **endothelial cells**.

In the blood vessels of a person with healthy lungs, the endothelial cells follow a strict life cycle: they form, multiply, die and are replaced.



PAH-affected blood vessel

Healthy blood vessel

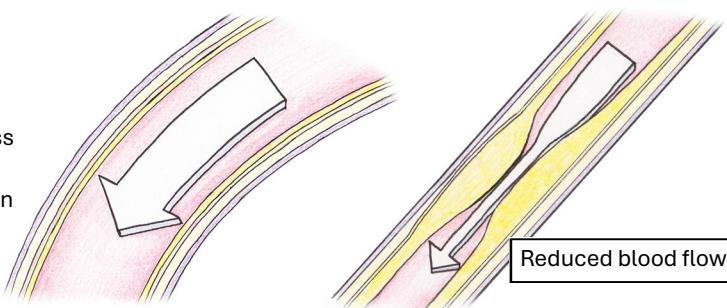


## What happens in lungs affected by pulmonary arterial hypertension (PAH)?

In pulmonary arterial hypertension (PAH), this life cycle is disrupted.

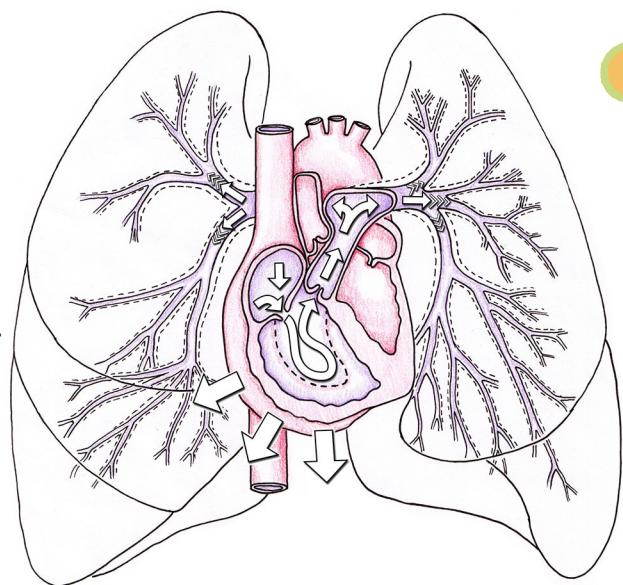
The endothelial cells multiply extensively without dying off. This causes them to build up in layers on the walls of the blood vessels.

This gradually makes the blood vessels narrower. Smaller vessels can become completely clogged. The excess endothelial cell buildup also makes the walls of the blood vessels stiffer and less flexible.



## How do these dysfunctional cells affect my lung blood vessels?

When the blood vessels in the lungs become narrower and stiffer, there is less room for blood to flow through. This reduced blood flow weakens the lungs' ability to oxygenate the blood, which can result in lower blood oxygen levels throughout the body. It can also cause fatigue, breathlessness, fainting and other physical symptoms.



## If the problem is in my lungs, why is my heart also affected?

The right side of the heart pumps blood through the lungs. Because of the narrowing of the blood vessels in the lungs, the heart must work harder to push blood throughout the lungs. Imagine trying to pump water through a wide, clean pipe versus a clogged pipe. The same happens in the lungs when the blood vessels are narrowed. As the right heart works harder, over time it becomes enlarged and weakened. This places people living with pulmonary arterial hypertension (PAH) at risk of right heart failure, and leads to symptoms including swelling, nausea, chest heaviness and/or palpitations.