

Supplementary Figure 1. Example page of the patient information material on pulmonary embolism

## What happens during a pulmonary embolism and why does it occur?

- A pulmonary embolism is a cardiovascular disease, mostly caused by a blood clot.
- There are several risk factors to a pulmonary embolism that differ in severity.
- Sometimes, multiple risk factors interact to cause a pulmonary embolism.

### Development of pulmonary embolism

- Blood clots (so-called thrombi) can form anywhere in the body. They develop very often in leg or pelvis veins - these are the blood vessels transporting blood from the legs towards the heart.
- The blood clot - or a part of it (called embolus) - can become loose and travel through the body, e.g. to the lungs.
- The blood clot blocks the pulmonary vessel. Then, the blood can no longer pass through this part of the vessel which cuts the tissue behind the blocked part off blood supply. The larger the blocked part, the more severely patients suffer from symptoms (e.g. shortness of breath).   
▶ p. 2
- Since the pulmonary vessel is blocked, the right ventricle has to work harder. If it fails to do so, this can lead to heart failure. Over the long term, patients could develop a cardiac insufficiency.   
▶ p. 10

Approximately **95%** of all pulmonary embolisms are caused by blood clots.

\* Risk factors include risks for thrombosis and pulmonary embolism as there is no separation of them in the scientific literature. This is a selection of the most important risk factors.  
 \*\* A special surgical procedure, e.g. to remove the gallbladder.

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**59** "I have often wondered why I suffered from a pulmonary embolism. I am a young person, don't drink alcohol and was always in a good shape. I always felt healthy and thought that something like this could never happen to me. My only risk factor was that I was on the pill. I never would have thought the pill could become a problem for my health because so many women just take it. The pulmonary embolism put a lot of stress on me at first, especially emotionally. I just didn't want to accept that I, of all people, had such bad luck. It took me a long time to process what I've experienced. I had to learn to accept the disease. Today, I am at peace with myself and don't let the pulmonary embolism limit me. Meanwhile, I exercise on a regular basis and take medication to minimize the risk for another embolism."

FEMALE PATIENT, 22 YEARS OLD | PULMONARY EMBOLISM 2 YEARS AND 3 MONTHS AGO

**ATTENTION!** People without pre-existing health conditions can suffer from pulmonary embolism, too.

### Pulmonary embolism without a blood clot?

In rare cases, a pulmonary embolism is not caused by a blood clot, but by other substances that have entered the blood stream such as fat cells, cells from the amniotic fluid, or foreign particles. In such cases, the substances block the pulmonary vessel. Similarly, this can lead to a cardiac muscle overload, depending on how large the affected area is.

### Causes of pulmonary embolism

There are multiple causes and risk factors\* for a pulmonary embolism. These risk factors can be classified according to their degree of severity. There are factors associated with a high (+++), medium (++) or low (+) risk of a pulmonary embolism.

<ul style="list-style-type: none"> <li>Bone fracture of leg or foot</li> <li>Hip or knee replacement</li> <li>Severe injuries (e.g. after accidents)</li> <li>Spinal cord injury</li> <li>Heart attack</li> </ul>	<ul style="list-style-type: none"> <li>Hospitalization due to atrial fibrillation or heart failure within the last 3 months</li> <li>Previous pulmonary embolism or deep vein thrombosis</li> </ul>
<ul style="list-style-type: none"> <li>Minor surgical procedures on the knee or leg (e.g., knee endoscopy)</li> <li>Hormonal contraception (e.g. pill) or hormone replacement therapy (depending on composition) or in vitro fertilization or puerperium</li> <li>Blood clotting disorder [thrombophilia] or certain medications that stimulate red blood cell formation or blood transfusions</li> <li>Certain heart diseases</li> </ul>	<ul style="list-style-type: none"> <li>Autoimmune diseases or inflammatory bowel diseases</li> <li>Venous catheters</li> <li>Stroke with subsequent paralysis</li> <li>Cancer or chemotherapy</li> <li>Certain viral infections (e.g., HIV, corona, pneumonia, urinary tract infections)</li> <li>Superficial venous thrombosis</li> </ul>
<ul style="list-style-type: none"> <li>More than 3 days of bed rest</li> <li>Diabetes</li> <li>High blood pressure</li> <li>Varicose veins</li> <li>Laparoscopic surgery**</li> </ul>	<ul style="list-style-type: none"> <li>Advanced age</li> <li>Little exercise (e.g. sitting for long periods)</li> <li>Pregnancy</li> <li>Overweight</li> </ul>

High evidence

RISK INCREASE >

< RISK DECREASE

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