



# Take Good Care of Your Heart

Prevention in Patients with Coronary Heart Disease



# Dear reader,

This brochure provides you with information about coronary heart disease (CHD), a disease where plaque builds up in the coronary arteries (atherosclerosis). This causes the arteries to narrow, preventing blood flow. There is also increased risk of a blood clot, known as a thrombus, forming. These patients are at risk of having a heart attack as well as a stroke or cardiovascular death. It is important to consistently counteract this risk.

For this purpose, doctors prescribe medication that aims to improve blood flow and prevent the formation of a thrombus. It is important to take this medication regularly and at the dose prescribed by the doctor to achieve reliable protection.

The following pages explain how CHD develops, the possible consequences of the disease, and how complications can be avoided.

Happy reading!

**The brochure is intended to provide information about coronary heart disease but is not a substitute for visiting your doctor.**



# Good to Know: The Heart

Our heart is located on the left side of the chest and weighs around

**300  
grams**



It beats around

**100,000 ×  
a day**



pumping the blood through the circulation like an engine.



Around five liters per minute, i.e. 7200 liters per day, flow through the blood circulation.



The heart's output can be increased considerably through exertion, for example during sporting activity or in stressful situations.

A constant blood flow is vital. It is used to supply the organs with oxygen and nutrients and to dispose of carbon dioxide and any unusable end products of metabolism. The “engine power” results from the rhythmic contraction and relaxation of the heart muscle. It is a hollow muscle that is composed of special muscle cells, known as myocardial cells.

## Blood Flow in the Heart

The heart muscle is composed of four chambers, the two “atria” of the heart (left and right atrium) and the two main chambers (left and right ventricles). They are separated from one another by the septum of the heart and the blood flow is regulated by heart valves. They open and close alternately, so that each time the heart muscle pumps, the blood can only flow in one direction. The heart valves therefore act like doors to ensure that the blood flows in the right direction and cannot flow backwards.

For the heart muscle to perform at its best, it is supplied with oxygen and nutrients via the coronary arteries.

# Coronary Heart Disease

**The characteristic feature of coronary heart disease, CHD for short, is narrowed coronary arteries.**

If, in the course of atherosclerosis, there are fat and calcium deposits and therefore what are known as plaques in the coronary arteries, this leads to vasoconstriction (the constriction of blood vessels).

**The result** is usually a restriction in blood flow at the narrowing (stenosis). The heart may then not get enough oxygen and nutrients to fully perform its pumping function. This is commonly known as "atherosclerosis" (build-up of plaque in the arteries).

The larger the plaques that are forming, the more the blood flow at the relevant point is restricted and the higher the risk of complication. This is because the plaques do not just prevent blood flow. They can rupture, for example, and blood clots (thrombi) can form.

This can, in turn, cause vascular occlusion and may even stop blood flow in that area completely.



# About Blood Clotting



*Thrombi form when the blood "clots". This results in platelet (thrombocyte) aggregation.*

*Blood clotting is a natural and important protective mechanism of the body, protecting it from blood loss when injured. The interaction of various factors in the blood in such a case causes the blood to clot in the area of the wound. A clot forms, closing the wound and stopping bleeding.*

*However, blood clotting is a double-edged sword: As beneficial as it is to stop bleeding from an injury, it is dangerous if the process leads to a blood clot within the heart or blood vessels. This is because the forming thrombi can close off vessels, thus interrupting the vital blood flow. The consequences depend on where this happens. If the thrombus forms in the coronary arteries, doctors refer to this as a heart attack. If, for example, a blood clot is transported with the blood from the coronary arteries to the brain, resulting in vascular occlusion, this is a stroke. There is also a risk of stroke if thrombi form in the atrium as a result of atrial fibrillation. The formation of blood clots in the leg veins leads to thrombosis with the risk of a pulmonary embolism developing.*

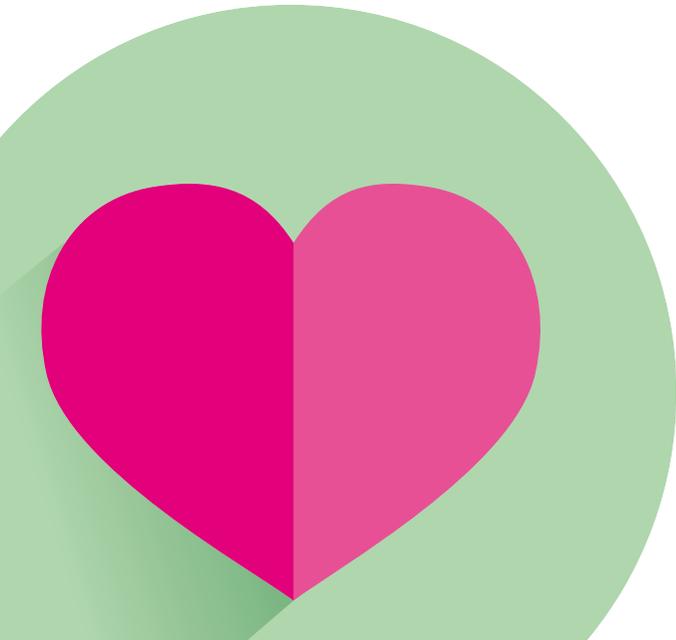
*Blood clotting is finely controlled in the body by the complex interaction of various coagulation (clotting) factors. However, this interaction of coagulation (clotting) factors can be influenced. This can inevitably influence the propensity for thrombus formation as well as the tendency to bleed.*

# Symptoms of CHD

**Coronary heart disease first manifests itself with symptoms, especially in situations of stress, for example during physical exertion.** There is often pain and a feeling of pressure or tightness in the chest. Doctors refer to this as angina pectoris. Other symptoms may be breathlessness and shortness of breath, heart rhythm disorders and dizziness.

As the disease progresses, physical fitness is increasingly diminished and symptoms usually occur on slight exertion and even at rest.

CHD can therefore lead to limitations in one's working life if, for example, full-time employment is no longer possible and the person even has to take early retirement. People with CHD can expect increasing limitations in their everyday life as a result of a lower level of fitness and experiencing exhaustion more quickly.



# Risk Factors of CHD



Risk factors facilitate the development of CHD.

## **Risk factors include:**

- ◆ lack of physical exercise
- ◆ an unhealthy diet
- ◆ smoking
- ◆ prolonged stress



Such factors also encourage the development of diseases which, for their part, increase the risk of developing atherosclerosis and CHD.



## **This includes:**

- ◆ hypertension
- ◆ dyslipidemia with high cholesterol levels
- ◆ obesity
- ◆ diabetes mellitus



# Treatment of CHD

**The treatment of CHD is aimed primarily at encouraging blood flow in the coronary arteries through medication, thus reducing the symptoms of angina pectoris.**

If there is clear constriction of the vessels, these may be able to be widened by means of what is known as balloon dilatation and possibly the implantation of a stent. Bypass surgery may also be necessary.

Such measures reduce the symptoms and improve patients' prognosis, but do not cure the underlying disease.

It is also important to reduce the risk factors of CHD by leading a healthy life.

## **This includes:**

- ◆ a balanced, healthy diet
- ◆ achieving and maintaining normal weight
- ◆ regular physical exercise
- ◆ reducing stress
- ◆ giving up smoking and excessive alcohol consumption



# Preventing Heart Attack and Stroke



There are other options to reduce the risk of complications such as heart attack or stroke resulting from CHD. This is possible by inhibiting blood clotting, i.e. by taking anti-clotting medication. Doctors refer to this drug group as anticoagulants, i.e. drugs that prevent the clotting (coagulation) of the blood. They reduce the tendency to form blood clots.

The aggregation of platelets (thrombocytes) can also be counteracted through what are known as anti-platelet therapy drugs such as aspirin (acetylsalicylic acid or ASA for short). This drug prevents blood clotting via a mechanism different to the anticoagulant. It inhibits aggregation, i.e. the clumping together of platelets, and thus reduces the risk of a thrombus forming.

Combined use of an anticoagulant and an antiplatelet agent provides convenient double leverage in preventing thrombus formation and thus complications of CHD.



# No Fear of Bleeding

**Those who take anticoagulants should know that the anticoagulant inevitably increases the tendency to bleed. That's only natural, since the anticoagulant is prescribed by the doctor to inhibit clotting in the blood and thus at the same time the formation of thrombi in the vessels.**

Some patients worry about the increased tendency to bleed and are even afraid that they will bleed to death if they injure themselves. Anticoagulants do not prevent blood clotting, they only slow it down. In practice, this does not mean there is the risk of bleeding to death at the slightest injury. However, you should know that the risk of bleeding is increased. This is usually lighter bleeding. You are thus more likely to see a hematoma, i.e. a bruise, if you have a bump. Those affected also easily develop bleeding gums or nosebleeds, for example. Furthermore, bleeding from injuries may be quite a bit heavier than usual.

If bleeding does occur, then this is treated as normal. In the event of smaller bleeds, i.e. if someone suffers a small injury working in the kitchen or garden, they should apply slightly greater pressure to the wound or for a longer time if needed. Major injuries should be treated by a doctor, since there are appropriate treatment options to stop even larger bleeds completely, as per usual.



However, in an emergency, a doctor should be informed that an anticoagulant has been taken.

**For your own safety, you should also always carry a patient ID which provides information about the use of an anticoagulant.** It is best to store this in your wallet, purse or together with other identity documents. If, for example, you ever have an accident, the doctor called to attend will be able to immediately introduce appropriate measures. Incidentally, this kind of patient ID card is enclosed with the medication package prescribed to you by your doctor. It is attached to the package leaflet and can be easily separated along the perforated edges.



# Reducing the Risk of Bleeding

You can also take simple measures yourself to prevent bleeding, for example if you have had an injury. People who take anti-coagulants should heed possible precautions particularly strictly:

- ◆ Be careful when handling sharp knives and scissors,
- ◆ eliminate trip hazards at home and
- ◆ always wear a helmet when riding a bike.

You should also not take any medication that additionally influences blood coagulation without consulting your doctor. Of course, this also applies to over-the-counter painkillers and non-steroidal anti-inflammatory drugs such as ibuprofen. You should also not take a high additional dose of aspirin for a headache, for example, without consulting your doctor.

Moreover, factors that may encourage bleeding should be avoided if possible. This means, for example, sufficiently reducing high blood pressure and limiting alcohol consumption, as high alcohol consumption in itself can increase bleeding tendency.



# Treatment Adherence is Required

People with CHD often need different medications, such as one or more agents against high blood pressure and/or against high cholesterol and possibly also medicines to treat other risk factors or conditions.

It might be difficult to always take the medication reliably and in keeping with what the doctor has prescribed. However, regularly taking the tablets is important for the prescribed agents to have their full effect. It is therefore advisable to take the tablets at a specific time of day, e.g. regularly at breakfast time and at dinner time. This makes it easier not to forget to take them. There are also many other supporting measures that can help you remember to take your tablets, i.e. to be “treatment-adherent”.

- ◆ If there is a **time** when other medications are taken, it makes sense to take this medicine at the same time as the other medicines.
- ◆ Taking the medication can also be accompanied by **daily activities**, such as reading the newspaper and/or watching the evening news on the TV.



# Any Questions?

- ◆ **Linking it with everyday objects** can also be used as a memory aid. It is a good idea to label objects that you use every day with a reminder sticker, for example, on the bathroom mirror, the wardrobe door or the coffee machine. Appropriate stickers are provided by Bayer Vital free of charge.
- ◆ There is also a **text reminder service** that you can use. Bayer Vital offers patients that are prescribed anticoagulants by Bayer a service where they can get free texts to remind them to take their tablets. The text reminder service can be synchronized according to the needs of the individual. It can be activated online at [www.gegen-thrombose.de](http://www.gegen-thrombose.de).
- ◆ Of course, you must continue **taking the medication when you travel**. Those who fly over different time zones should ask their doctor how the medication is best taken in such cases.

**If you forget to take a tablet at the usual time, you can take the medicine later in the day. However, you should never take more than the prescribed dose in one day. The next time you take the tablet should ideally be the following day at the usual time.**



Furthermore, the medical treatment should never be stopped without consulting your doctor as otherwise you will have no effective protection against thrombosis and lung embolism.

This brochure provides only a brief overview of issues regarding coronary heart disease and its treatment options. It cannot, and is not in any way intended to, replace the consultation with your doctor. This is important because your doctor can assess your individual situation and choose the treatment that is best for you.

If you have any further questions, please contact your doctor. You can also call our hotline free of charge or visit our website:



**0800-927 35 86** (8 a.m. to 6 p.m. on weekdays)



**[www.gegen-thrombose.de](http://www.gegen-thrombose.de)**





Practice stamp