

Prevention and early detection of modern cardiovascular diseases

Definition Cardiovascular disease:

Under the term of cardiovascular Disorders are the diseases of the heart and of the vascular system combined.

Emergence of cardiovascular disease:

Most vascular calcification can be made responsible for clogging arteries and a heart attack or a stroke is triggered.

However, research findings show, that even soft deposits, so called soft plaques or unstable atheromatous plaques, are very dangerous. Soft plaques are fat particles that are deposited under unfavorable conditions, such as smoking, lack of exercise or poor nutrition in the arterial wall. The result is an inflammation that is triggered by the immune system. The danger with soft plaques is that they usually cause no discomfort and therefore often remain undiscovered for a long time.

Statistics: Cardiovascular diseases are very widely distributed in the world and should be taken seriously as a disease.

Total 868 356 deaths were registered only in 2014 in Germany.

In Germany almost one in two deaths goes back to diseases of the cardiovascular system. The consequences of circulatory diseases affect mainly people in advanced age: 92% of the dead were 65 years and older.



Especially prevention on cardiovascular disease can be make well

1. A healthy life style

The WHO estimates that more than 50% of deaths accured through cardiovascular disease can be avoided by preventive measures

(Source: Federal Ministry of Education and Research: Heart in danger? causes, prevention, treatment - results of cardiovascular research 2004, p 11)

Through a conscious lifestyle we can actively prevent. In addition to the often discussed „work-life Balance „especially physical activity and a healthy diet helps.

(S. Also recommendations of the German Society of Cardiology on page 2 of this newsletter)

2. Due to modern diagnostic methods the disease can be detected early.

Talking about cardiovascular disease modern medicine has various methods to detect any disorder in the process of the emergence early, even before it ever triggers symptoms. So you can take action in time to minimize the personal risk. ●



What diseases are particularly dangerous? and how to take care of themselves.



We recommend: to enjoy the food diversity and 5 servings of vegetables and fruit each day

Chronic ischemic heart disease is a circulatory disorder of the heart muscle that lasts longer than four weeks. The most common cause of chronic circulatory disorder is atherosclerosis of the coronary arteries. It can be affected one or more coronary arteries. In some cases, the contraction is only slight, so that no damage to the heart muscle is created. In other cases, the blood flow is restricted in such a way that the heart muscle is damaged.

As the second most common disease follows the heart (= myocardial) infarction and results in heart failure, decreased cardiac pump function („cardiac insufficiency“). A special case is the diastolic heart failure, in which the pumping power of the heart can be normal, but the stiffness of the ventricle increases and complicates the filling with blood. ●

Main objectives for the prevention of cardiovascular disease

What are the main objectives for the prevention of cardiovascular disease?

- Smoking: Avoid tobacco use of any kind
- Diet: A varied diet with a low proportion of saturated fats and a high proportion of whole grains, fruits and vegetables.
- Physical activities: 2.5 to 5 hours moderate intensity activity per week or 30-60 minutes most days.
- Also the body weight, the blood lipids, the blood pressure and a possible diabetes are important parameters.

Ideal physical activity:
2.5 to 5 hours moderate intensity
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Modern methods for the diagnosis of cardiovascular disease

For the early detection of possible cardiovascular disease there are a variety of diagnostic Methods s. Page 4 available.

A distinction is made between

- Invasive diagnostics and
- Non-invasive diagnosis.

An invasive investigation is a medical procedure in which an intervention on the body of the person being examined is carried out.

In the following two modern, non-invasive diagnostic methods for screening are briefly presented.

Gentle and noninvasive: MR Angiography

A suitable, non-invasive method of prevention is the whole-body MRI angiography because it is very reliable and at the same time gentle and produces high-resolution images. Using this method, the entire vascular system is made from the base of the skull vessels up to the vessels in the lower leg visible without invasive intervention in the body and without X-ray radiation.

The display of the entire vascular system as a precaution is advantageous because vascular diseases are systemic diseases.

When an atherosclerotic plaque is found on a „non-critical“ point in the arterial vascular system, there is an increased risk that such lines are forming plaques even at critical vessel sections. As to the coronary arteries or the cerebral vessels. If these are detected soon, the risk is reduced to suffer a heart attack or stroke.

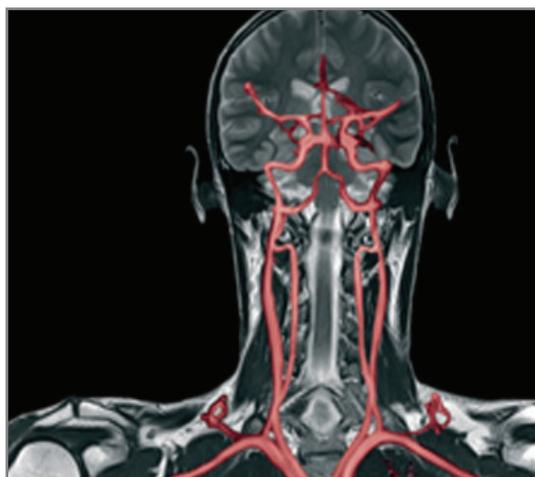


Fig. Whole-body MR angiography

Usually the whole body angiography for screening is not reimbursed by health insurers (Germany). It is a personal decision of each to choose this high-tech screening and to assume the costs of this expensive process.

At specific risk factors for heart Disease: MRI (Stress) Heart investigation

In the presence of specific risk factors (eg. Hypertension, obesity, heart attack history in the Family) it is possible in addition to the MR angiography to carry out an MRI (stress) Heart study. ●

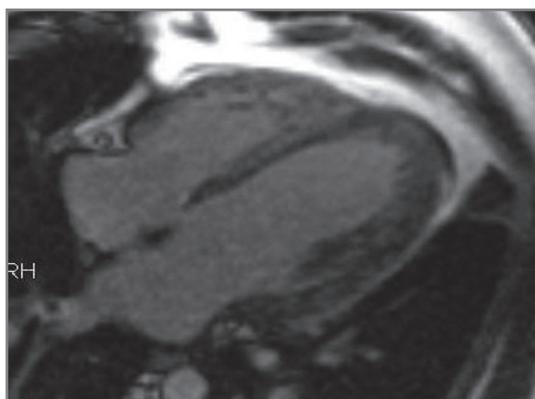


Abb. MRI of the heart

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Imprint

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Please notice

All topics , Studies and statistics are researched to the best of our knowledge, but do not replace a doctor's visit.

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methods for the diagnosis of cardiovascular diseases

Non invasive diagnostic procedures

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| labaroty | In some cardiovascular disease, disease-specific markers in the blood can be detected, eg. as in a heart attack or heart failure. |
| Echocardiography | Echocardiography is an examination of the heart made with ultrasound, specific images of cardiac structures and functions will be created. |
| Ectrocardiogram (ecg) | An electrocardiogram is a recording of the electrical activity of the heart and can detect various pathological changes in the cardiovascular system. One differentiates between resting, stress and Holter ECG. |
| Magnetic resonance imaging (MRI) | Magnetic resonance imaging is the most accurate imaging technique that provides a detailed presentation of organs and tissues. without x-ray exposure. Especially in cardiovascular diseases the MRI is one of the main non-invasive diagnostic methods, since a large number of cardiac questions can clarify. |
| Computertomography | Noninvasive coronary CT angiography is the equivalent method to an invasive cardiac catheterization for imaging of the coronary vessels using x-rays. On suspicion of coronary heart disease, the amount of calcium deposits by lime score (without contrast media) and a CT coronary angiography (with contrast media) to exclude or to represent constriction will be performed. |
| myocardial scintigraphy | The myocardial scintigraphy is an investigation procedure for displaying the blood flow and the vitality of the heart muscle, which is carried out with radioactive marker substances. |
| Spiroergometry | The Spiroergometry is a diagnostic method in which the respiratory gases are measured during exercise to assess the physical performance. |
| Telemetry | Telemetry is an examination for the diagnosis of cardiac arrhythmias. The current waveforms are not recorded, but sent via radio data transmission to a central computer and then immediately analyzed with computer assistance. A doctor checks the results afterwards. |

methods for the diagnosis of cardiovascular diseases

invasive diagnostic procedures

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| Catheterizations | In cardiac catheterization, a thin plastic tube (catheter) is inserted through a vessel in the vascular system. With contrast medium, which will be injected into the vessels over the catheter, the heartvessels will be visualized. |
| Intracoronary pressure measurement | Direct measurement of blood pressure in the coronary arteries is called intracoronary pressure measurement. With these method the blood flow in narrowed vessels can be evaluated. |
| Intravascular ultrasound (IVUS) | The intravascular ultrasound is an imaging technique to visualize blood vessels, in which an ultrasonic probe is pushed by catheter technique up in the coronary arteries. |
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