

Information for those who have angina or have had a heart attack Examination and treatment / Rehabilitation and lifestyle changes



TABLE OF CONTENTS

1. Introduction	3		
 2. The heart and its coronary arteries 3. Examination and treatment 4. The period after hospitalization 	4 5 7		
		5. Cardiac rehabilitation	9
		6. Heart-friendly lifestyle	11
Diet	11		
Physical activity	14		
Tobacco - Cigarettes and snus	17		
Stress and stress management	18		

7. Sources of information about heart disease and health ____ 20

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1. INTRODUCTION

This information brochure is made for those of you who have angina or have had a heart attack. Here, you will find useful information about the heart, examinations, treatment, and rehabilitation. You'll also find advice on lifestyle habits that help reduce your risk of developing heart disease.

People with heart disease are advised to participate in a structured cardiac rehabilitation program. The goal of rehabilitation is better health, increased level of functioning, and increased safety during physical activity and exercise. Rehabilitation is about getting back to normal everyday life and working life quickly.



2. THE HEART AND ITS CORONARY ARTERIES

The heart is a muscle as big as our own fist, and the heart pumps oxygen-rich blood around the body. The heart has its own arteries that lie like a wreath on the outside and branch into the muscles. From these arteries, the heart muscle receives oxygen-rich blood.

In these coronary arteries, a disease process called atherosclerosis, or hardening of the arteries, may occur. The walls of the arteries are then gradually thickened due to the deposit of fat, inflammatory cells and calcium. Most people get such deposits to a greater or lesser extent as they get older, and some are more genetically predisposed than others.

Conditions that can affect and speed up the process of atherosclerosis of the arteries are smoking, high blood pressure, high cholesterol, little physical activity, diabetes, and stress.

The symptoms of angina pectoris vary and can be felt as an oppressive, crushing chest pain. Some people have pain in the left arm or both arms, between the shoulder blades, up by the neck, throat, jaw and in the upper abdomen. The pain usually only lasts for a few minutes and often subsides when you rest. Other symptoms may include heavy breathing and fatigue. Symptoms of angina pectoris often occur during physical exertion, emotional and mental challenges, and stress.





The heart and coronary arteries

Angina

In angina, the heart has a smaller supply of oxygen-rich blood than it needs. Atherosclerosis of the arteries narrows the cavity of the blood vessels, negatively affecting blood flow.

Normal artery

Atherosclerosis in an artery

Heart attacks

A heart attack occurs when a blood clot clogs one of the coronary arteries, causing part of the heart to receive an insufficient supply of oxygen-rich blood. If the blood supply is completely stopped, the muscle cells in the heart are at risk of dying, and the heart's ability to pump blood can be impaired.

The symptoms of a heart attack are similar to angina pain but are often stronger and do not subside when you rest. Other symptoms may include nausea, vomiting, cold sweats, and heavy breathing.

In the event of a heart attack, it is very important to seek treatment urgently to limit the damage to the heart muscle. If chest pain lasts longer than 5 minutes, then call the emergency number 113.

3. EXAMINATION AND TREATMENT

If you have symptoms of angina or heart attack, the relevant examinations are ECG tests, blood tests, an exercise ECG, ultrasound, CT scan of the heart, or coronary angiography.

Coronary angiography

Coronary angiography is an X-ray examination of the coronary arteries. During the examination, a catheter is inserted from an artery at the wrist or groin to the heart. Contrast dye is inserted through the catheter, and any deposits in the heart's arteries will appear on X-rays.

The result of the survey may show:

- 1. Narrow areas of the heart's arteries that need treatment with medication and lifestyle changes.
- Narrow sections on one or more of the arteries where blood circulation to the heart muscle is insufficient. In addition to medication and lifestyle changes, the narrow portions must be opened by unblocking (PCI).
- 3. For some, heart surgery (bypass) will be the best treatment. In a bypass operation, healthy blood vessels from another part of the body are used to divert past the narrow sections of the heart's arteries. In addition, there is treatment with medication and lifestyle changes.

Unblocking/Percutaneous coronary intervention (PCI)

Unblocking is a means of treating deposits in the arteries of the heart and is often done in connection with a coronary angiography examination. The treatment is relevant for both heart attacks and angina. A balloon catheter is inserted into the narrow or tight section of the coronary artery. The balloon expands and presses the deposit against the artery wall so that the blood can flow freely once again. A stent is often inserted into the artery. A stent is a metal wire-mesh tube that keeps the blood vessel open.



Balloon catheter in a coronary artery Stent inserted into a coronary artery

The most common medicines for heart disease

In case of angina or heart attack, treatment with medications will be needed. Changing or stopping medications must always be done in consultation with a doctor.

Blood-thinning medications:

To reduce the risk of blood clots and heart attacks, medications are used that affect the ability of platelets to stick together. Some of these medications is used for life. Several blood-thinning medications are normally also used at the same time for a period following unblocking.

Cholesterol-lowering medications:

To reduce the risk of new deposits in the arteries, cholesterol-lowering medications are used. They lower the level of fats in the blood, strengthen the walls of blood vessels, and reduce the risk of heart attack.

Beta blockers:

Beta blockers lower heart rate and blood pressure and reduce the strain on the heart. The heart works less and needs less oxygen. This reduces the risk of heart attack.

Antihypertensive medications:

In case of elevated blood pressure, antihypertensive medications are used to protect the coronary arteries from atherosclerosis and facilitate the work of the heart. There are many types that work differently.

Glyceryl trinitrate:

In angina, pain can subside within a few minutes when using glyceryl trinitrate (GTN). The medicine is taken as a spray or orodispersible tablet under the tongue. The medicine works by dilating the veins, which are the blood vessels that carry blood back to the heart. This reduces the heart's oxygen demand. Some also take long-acting glyceryl trinitrate.

In addition to medications, most people benefit from lifestyle changes. You can help prevent and reduce the risk of cardiovascular events in the future through smoking cessation, healthy diet, and regular physical activity and exercise.





4. THE PERIOD AFTER HOSPITALIZATION

The hospital sends discharge reports to the local hospital, referring doctor and regular GP after the hospital stay. The discharge report is a document that contains information about the examination or treatment that was carried out. You can also find it on helsenorge.no.

There may be differences in practice at local hospitals for follow-up after unblocking (PCI) and heart attacks. It is important that you contact your regular GP for regular check-ups. Good follow-up prevents further development of heart disease.



Physical activity

Advice on activity for the initial period after a PCI or heart attack will be given to you by your doctor or physiotherapist while you are in the hospital. When you are discharged from the hospital, you should be engaged in daily physical activity. For the first four weeks, the recommended intensity is light to lightly strenuous. Start with short walks and increase the duration gradually.



Sleep and rest

It's natural that you need more rest during the initial period after a heart attack or if you have angina. However, it is not recommended that you sleep much during the day, in order to prevent affecting your sleep at night. Physical activity has been shown to have a positive effect on night-time sleep.





Mental reactions

When you are affected by illness, it's normal for both you and your loved ones to have emotional reactions. It can be anxiety, fear, shock, sadness, irritation, mood swings and grief. There is great variation when it comes to the extent of emotional reactions. Fresh air, activity, and social contact have a positive effect on mental health. Openness about feelings and conversations help you and your relatives cope with the situation.



Sex life

The physical strain during sexual intercourse is small. At orgasm, the pulse and blood pressure are similar to moderate activity such as walking briskly or climbing two floors of stairs. You can resume sexual life when you feel ready for it.

Certain medications and stress reactions can negatively affect erection and sexual desire in some people. Talk to your doctor if this persists.



Driving

There are usually no restrictions when driving for angina or PCI. Anyone who has had a heart attack is subject to a driving ban for 4 to 6 weeks. In the case of unexplained heart disease, some people are banned from driving for a period of time, and this applies in particular to professional drivers



Sick leave is common from 1 to 4 weeks after a heart attack. The

Sickness absence

weeks after a heart attack. The length and degree of sick leave depend on your health condition and what kind of work you have.

Heat and cold

There are no special restrictions with regard to heat and cold, even if you have heart disease. It is recommended to avoid strenuous exercise in excessive heat and cold. However, there are major individual differences, and it is important that you get to know your tolerance level. For example, some people who suffer from angina will find that their symptoms worsen in cold weather. If you feel that the temperature outside is uncomfortable for you, find alternative activities indoors.

Avoid major temperature changes such as going in a sauna and taking a cold shower afterwards. Saunas can otherwise be used as normal.

Flights and international travel

You can normally fly after a PCI. It's a good idea to drink plenty of water, move a lot during the flight and, if you wish, wear compression stockings to reduce the risk of blood clots in your legs. For longer flights or stays abroad during the first few weeks, it is recommended to talk to a doctor first. When travelling, store your medicines in your hand luggage and in its original packaging.

5. CARDIAC REHABILITATION

Rehabilitation programmes are programmes that include medical assessments, training, counselling, teaching and psychosocial support. Rehabilitation programmes are often composed of several occupational groups and have different durations and content.

The goal of cardiac rehabilitation is to increase functional level, improve quality of life, achieve confidence and cope with disease. At cardiac rehabilitation, you can get help to find motivation for lasting lifestyle changes such as smoking cessation, physical activity, healthy dietary habits, weight reduction, and coping with stress. To reduce the risk of new cardiac events, the focus is on medical treatment of blood pressure, cholesterol and blood sugar.

Participation socially and in working life promotes health and returning to a normal everyday life is an important part of cardiac rehabilitation. For those who are working, this means clarifying when it is right to return to work.

Rehabilitation after the hospital stay

- In the hospital: The rehabilitation process starts already, with information and a focus on getting started with light activity.
- Directly after the hospital stay: Early rehabilitation with an outpatient day programme at your local hospital or at a rehabilitation institution. The purpose of this phase is to get started with physical activity and exercise. Rehabilitation consists of teaching and guidance on lifestyle changes and low to moderate-intensity exercise.
- After weeks to months at home: Rehabilitation exists both as and outpatient day programme and an inpatient stay at a rehabilitation institution. In this phase, moderate to high intensity exercise is introduced. The purpose of the training is to improve your prognosis by increasing your physical fitness. In addition, you will receive education and guidance on medical treatment and lifestyle changes.



Follow-up in the municipality where you live is more long-lasting and the services can be found at the healthy life centre, physiotherapist, or in exercise groups.

Healthy life centres

Healthy life centres are a health service in the municipalities. The goal is to promote health and prevent disease by providing early help to change lifestyle habits and cope with health challenges. Here, conversations about health with a focus on physical activity, diet and tobacco are offered. Some municipalities also offer services relating to mental health, sleep and sleep problems, and problematic alcohol consumption.

The healthy life centres' services shall be adapted to users with a cultural and linguistic background other than Norwegian. Interpreters are used when needed.

The National Association for Heart and Lung Disorders (LHL):

LHL has close to 240 local chapters across Norway. Here, you are part of a community. The local chapters have different offers for members: courses, training groups, information, and themed meetings, as well as trips and social events.

Peers:

Do you need to talk to someone who has been in or is in the same situation as you? A peer in LHL has personal experience of illness, as a patient or as a relative.

A peer can be a support for others in a difficult life situation and contribute with knowledge about opportunities that exist. A peer is first and foremost a fellow human being who can listen and share their own experiences. Peers from LHL are often represented in many hospitals, including at heart schools (*hjerteskoler*).





6. HEART-FRIENDLY LIFESTYLE

After completing comprehensive assessment, treatment and rehabilitation, most people can continue an active life. Having a diet that is good for your heart, getting regular physical activity, and refraining from smoking are important preventative measures in reducing the risk of developing heart disease. In addition, awareness of stress and stress management may be important to you.

Diet

People with a known or increased risk of heart disease should strive for a diet recommended in accordance with the guidelines drawn up by the Norwegian Directorate of Health. If you need advice and guidance on changing your diet, you should seek advice from your regular GP, who can refer you further. Most municipalities offer "Bra-mat kurs" ("Healthy food courses"), and conversations about diet. Cardiac rehabilitation also includes classes taught by a clinical nutritionist.

Dietary advice for heart patients:

- Eat more vegetables, legumes and fruit. Eat at least five servings of vegetables, fruit and berries every day. Half as many vegetables.
- Reduce the use of red meat, especially processed meat. Processed meats are meats that are either salted, smoked or those to which nitrites have been added such as cured meats, bacon and sausages. These often contain more fat than pure meat. Instead, eat white meats such as chicken and turkey.
- Choose low-fat dairy products. Reduce the use of whole milk, cream, fatty cheeses and hard butter such as dairy butter.
- Replace butter and hard margarine with plant oils such as olive and canola oil, and soft or liquid margarine.



- Eat fish for dinner two to three days a week.
 Also feel free to use fish as a sandwich topping.
 Oily fish such as salmon, trout, mackerel and herring should be eaten several times a week.
- Eat whole grain products every day. Choose breads and cereals that have 3 or 4 coloured squares on the bread scale.



- Eat less finer grain products such as baked goods made with white flour, white bread and sweet cereals.
- Avoid foods and drinks with a lot of sugar for everyday use. Choose water when quenching your thirst.
- Choose foods low in salt and limit the use of salt in cooking and on food. Ready-made food such as sous-vide meals, frozen and fresh dinner dishes contain a lot of salt.
- Look for the keyhole label on foods in the store. These contain less salt than similar products.



- Salt that contains potassium (e.g., Seltin) is a good alternative to regular salt.
- Have a varied diet.
- Regular meals are recommended. Feel free to eat every three to four hours. Eat a meal or snack when you're moderately hungry and stop when you're comfortably full.
- Have a good balance between how much energy you receive through food and drink, and how much you use through activity.

Alcohol

High alcohol intake increases blood pressure and is associated with an increased risk of heart disease. Consumption should not exceed 100 g/ week, which corresponds to one glass of wine at 1 dl per day or one 0.33 l of beer per day. It is not recommended to ingest larger amounts in a day, as this is more harmful than a steady consumption. Alcohol contains a lot of energy, so it can also affect body weight.

Diet in connection with weight loss

Being overweight is not a disease in itself, but obesity can cause serious problems for health, well-being and quality of life. Obesity increases the risk of heart attacks, stroke, high blood pressure, some types of cancer and type 2 diabetes, among other things. The risk increases with increasing obesity, especially with abdominal obesity.

Overweight and obesity are caused by an imbalance between the intake of energy and the consumption of energy over time. Genetic factors can make some people more prone to developing overweight and obesity than others. Medications, illnesses, mental and social conditions can also be contributing factors to obesity.

The goal is for each individual to find a diet and activity level that they enjoy and that fits into

their lifestyle. Weight loss should not be the only goal. Other important goals are coping, better self-esteem and quality of life. To achieve weight loss, one must be in a negative energy balance. This can occur with the help of a decrease in energy intake and increased use of energy during physical activity. A weight reduction of 5–10 % can provide significant health benefits and should be considered successful, even if the optimal weight has not been reached.

People with BMI > 40 or BMI > 35 with comorbidities may need a greater weight reduction to achieve the desired health effect. At these BMI



Calculate your BMI here: Ihl.no/sunnere-liv/bmi-kalkulator

values, one should consult a regular GP for treatment and follow-up.

There is no specific diet that has been shown to provide better weight reduction than others in the long term. Some diets such as extreme low-carb and high-fat diets are not a good fit for patients with heart disease and are therefore not recommended. A diet only works as long as it is followed. This means that many people unfortunately gain weight again when they return to previous habits. For the vast majority, the key to succeeding with a permanent reduction in weight lies in good living habits, and good follow-up and support from health personnel, family and friends.

It's important to make changes you can live with over time and preferably your whole life. You can definitely lose weight by following the dietary advice above. However, it's also possible to gain weight if you eat a lot of healthy food. All food provides energy. It is therefore also necessary to adapt the portions of healthy food in order for it to produce a reduction in weight. Some of the foods recommended for heart patients are highly energy-rich, such as nuts, almonds, and vegetable oils. These should not be eaten in excessive quantities. There is also energy in drinks such as juices and smoothies.



A daily reduction in calorie intake is the most effective measure to lose weight. In addition, the burning of calories is increased through physical activity and exercise.

Physical activity

If you have a heart illness, the heart receives a number of benefits from physical activity and exercise:

- Increased blood flow to the muscles of the heart and the rest of the body
- Strengthening of the heart so that it pumps more blood
- Less stress for the heart
- Maintaining or achieving a normal weight
- Improved regulation of cholesterol, blood pressure and blood sugar
- Improved physical fitness

National guidelines recommend that adults and the elderly be moderately physically active for at least 2.5 to 5 hours per week. This is about 20-40 minutes every day. If the activity level is increased to high intensity or exertion, the time can be halved. This sounds like a lot, but all activity counts and you can spread the time over all the days as you wish.

But the most important health benefit and effect comes from going from inactive to active and reducing the sedentary time during the day. Remember that all activity counts regardless of type and intensity!

A practical example is being active at least 21-40 minutes daily at a moderate intensity in which you breathe a little more than normal. Or you can choose to be active at least 10-20 minutes at high intensity daily. High intensity means that you breathe much more and more quickly than normal. Or you can do a combination of moderate and high intensity activity.





For people over 65 years of age, balance and coordination exercises are also recommended.

Training

Training is physical activity that is planned, structured and repeated, and that aims to improve or maintain physical fitness. Cardio and strength training can be combined in the same session or done separately. A workout should consist of a warm-up, a main part, and a tapering stage.

Warming up

Warming up before exercise is especially important for those who have heart disease. The heart, blood vessels and muscles need a little extra time to prepare for exertion.

It is recommended that all exercise starts with a minimum of 10 minutes of light intensity activity. This also applies to heavier everyday activities, such as snow shovelling. Light intensity means that the pace is comfortable. You can then talk relatively effortlessly while getting warmed up. If you have angina or are taking beta-blockers, you may need a longer warm-up before you feel that your body is ready to exert itself.

Cardio training - Main part

For heart patients, it is recommended to do cardio training three to five times per week. The duration of the workout is recommended to be at least 20 minutes. The training can be arranged as continuous work or as interval training.

Continuous work means maintaining a steady intensity throughout the session. The intensity should be somewhat strenuous or strenuous. You should be able to speak relatively effortlessly while exercising. Relevant activities can be hiking, cycling, paddling, jogging or skiing.

Interval training means alternating between high-intensity activity and lower-intensity active



breaks. This can be accomplished by using uphill slopes to increase the intensity or alternating between increasing and slowing the pace.

High intensity should feel strenuous or very strenuous. You will only be able to speak in short sentences. The intensity of the active breaks should be perceived as light or somewhat strenuous. Your blood pressure and pulse will go down so you're ready for the next interval. An example of interval training might be cycling, jogging, dancing or skiing for 2-4 minutes at a high intensity. Then, move at a leisurely pace for 1-3 minutes and repeat 1-4 times. Make sure you don't stop abruptly but rather reduce the intensity gradually.

Strength training

For further health effects, it is recommended that the recommended minutes include strength training to increase muscle mass and strength, one to three times a week. Strength training can be carried out at home, using, for example, elastic bands, exercise balls, an exercise mat or with your own body weight. In a gym, you can use machines and equipment. Do 8-10 exercises for the whole body. The exercises are performed one to three times, and the load should be such that you can manage 8-12 repetitions. Training can also be carried out with heavier loads and fewer repetitions. Remember to breathe when doing strength training. A good rule of thumb might be that you exhale as you do the heaviest movement. In this way, you release oxygen to the muscles.

If you haven't done any strength training before, it may be helpful to have guidance at the start. You can get this by participating in cardiac rehabilitation, by exercising with a physiotherapist, or at a gym.

Tapering

All training should end with a tapering phase of 5-10 minutes. The tapering should have light intensity to calm the body down.



Training with stable angina

If you have stable angina, you need to pay attention to chest pain. If you experience pain during exercise, you should slow down until the pain passes. Resume the activity when the pain subsides. A good warm-up prior to exercise can enable you to push yourself more before the pain comes. Some experience a positive effect from taking glyceryl trinitrate just before training or just before a major exertion during exercise. You can then manage to maintain a higher intensity during training and the effect of the training will be better.

Tips for getting started with training

When starting out with training, it is a good idea to investigate what activities are available near where you live. Finding an organized activity where you can exercise with others increases the possibility that you'll maintain your training.

Plan your training in your everyday life and use an activity calendar. Using an activity log where you record your activity will also help you stay motivated. Digital tools can be motivating and help make you aware of your activity level. Many people have pedometers on their mobile phones or fitness watches.

Find fitness groups and communities near you:

- Training groups under the auspices of hospitals
- Healthy life centres or training arranged by your municipality.
- Local sports clubs
- Healthcare organizations
 - LHL
 - The Norwegian Rheumatism Association
 - The Norwegian Trekking Association (DNT).
- Gyms and institutes of physiotherapy.

Tobacco - Cigarettes and snus

Tobacco products such as cigarettes and snus contain the substance nicotine, which causes addiction. Nicotine makes the heart beat faster and causes blood vessels to constrict and blood pressure to increase.

Smoking causes atherosclerosis (deposits) in the arteries and high blood pressure. This in turn leads to an increased risk of blood clots and reduced blood flow through the veins to the heart, brain and legs. Everyone who smokes suffers damage to their lungs.

Snus is not as harmful to health as smoking, but both snus and cigarettes pose a risk of type 2 diabetes and cancer. Research shows that the risk of dying after a heart attack is reduced if you stop using snus

Here are some good tips:

- Decide on the date on which you will quit using tobacco altogether. This may well be a couple of weeks in the future.
- Write down all the reasons why you want to quit smoking or using snus, to provide good motivation.
- Decide how you want to go about quitting. Medicines make it easier to guit using snus and smoking. You can use nicotine medicines without a prescription or talk to your regular GP about prescription medicines.
- Cut down during the period leading up to the end date. Become aware of when, where and why you smoke or use snus. Write a log where all this is documented.
- Decide to break your habits. Smoke and use snus at other times and in other places than you are used to. Can you perhaps switch to a different brand?



- Decide what to do when the craving for cigarettes and snus comes. Divert your attention with simple measures do something else.
- Think about what temptations will come. In what situations will it be most difficult to refrain from smoking? Visualize these situations in advance and decide on one or more solutions.

E-cigarettes are sold in Norway with nicotine-free e-liquid. Most people who use electronic cigarettes do so to quit smoking or as a substitute for cigarettes. E-cigarettes are less harmful than tobacco smoking but are not without health risks. There is still little research on the health consequences of using e-cigarettes, especially when it comes to knowledge about long-term effects.

If you need help quitting, contact your regular GP for a conversation. Most municipal healthy life centres offer regular assistance in quitting smoking and using snus, with both individual guidance and group-based courses.

Stress and stress management

Stress is an emotional response and physical reaction to a perceived challenge or danger. Stress is your reaction to threats, pressure, or having to deal with more than you can handle.

The physical reactions are not harmful when they occur acutely and last for a short time. It's when stress persists or keeps coming back that it can be harmful.

If being behind on tasks and experiencing not having control over your own life situation persists over time, you may be at risk of developing chronic stress.

Negatively, chronic stress produces physiological and chemical changes in the body that can be





harmful. This can lead to illness, including by breaking down your immune system and straining the heart and other organs. Chronic stress can be a risk factor for heart disease.

Managing stress

It can be difficult to remove negative stress, but we can usually do something about the way we relate to stress. It is important to become aware of your own situation and the factors that affect your stress levels. These may be specific stressors related to habits and routines at work and in your free time. You need to think about how you deal with work, family, diet, physical activity, sleep, rest, and breathing.

After you have mapped your own stressors, it is important to find good measures and tools that work for you. It's primarily about acknowledging and accepting your situation. You should concentrate on what you can change and accept what you can't influence. Measures you can try:

- Practice doing nothing. Take breaks and daydream.
- Prioritize differently, delegate, and ask for help or support.
- Do positive things that bring you joy and mastery.
- Learn to say no when you mean no.
- Test out relaxation techniques and find a method that's right for you.
- Be physically active.
- Get enough sleep.
- Laugh more and play.



7. MORE HEART DISEASE AND HEALTH RESOURCES

If you would like to know more about any of the information in this brochure, there are many useful websites with health information. This information is in Norwegian and is available as an attachment to this translation. Here, the brochure's references are also available. <u>Ihl.no/om-Ihl/nyttige-nettsider-og-referanser</u>

Notes:



LHL

Email: post@lhl.no Phone: 22 79 90 00 Website: lhl.no

