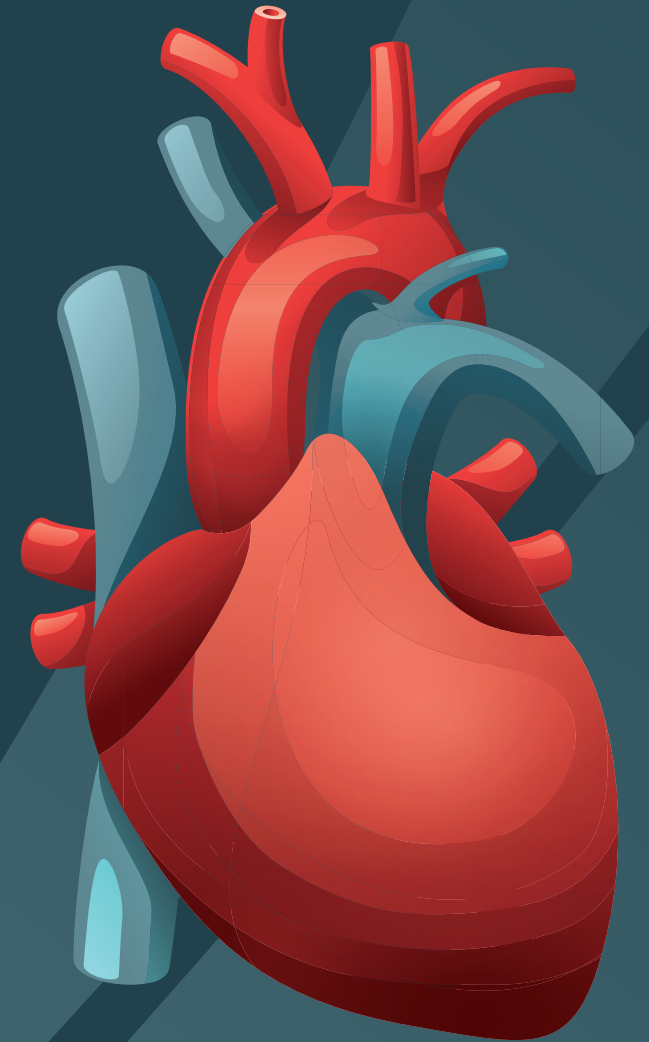


# INFORMATION ON TREATMENT OPTIONS AFTER A HEART ATTACK

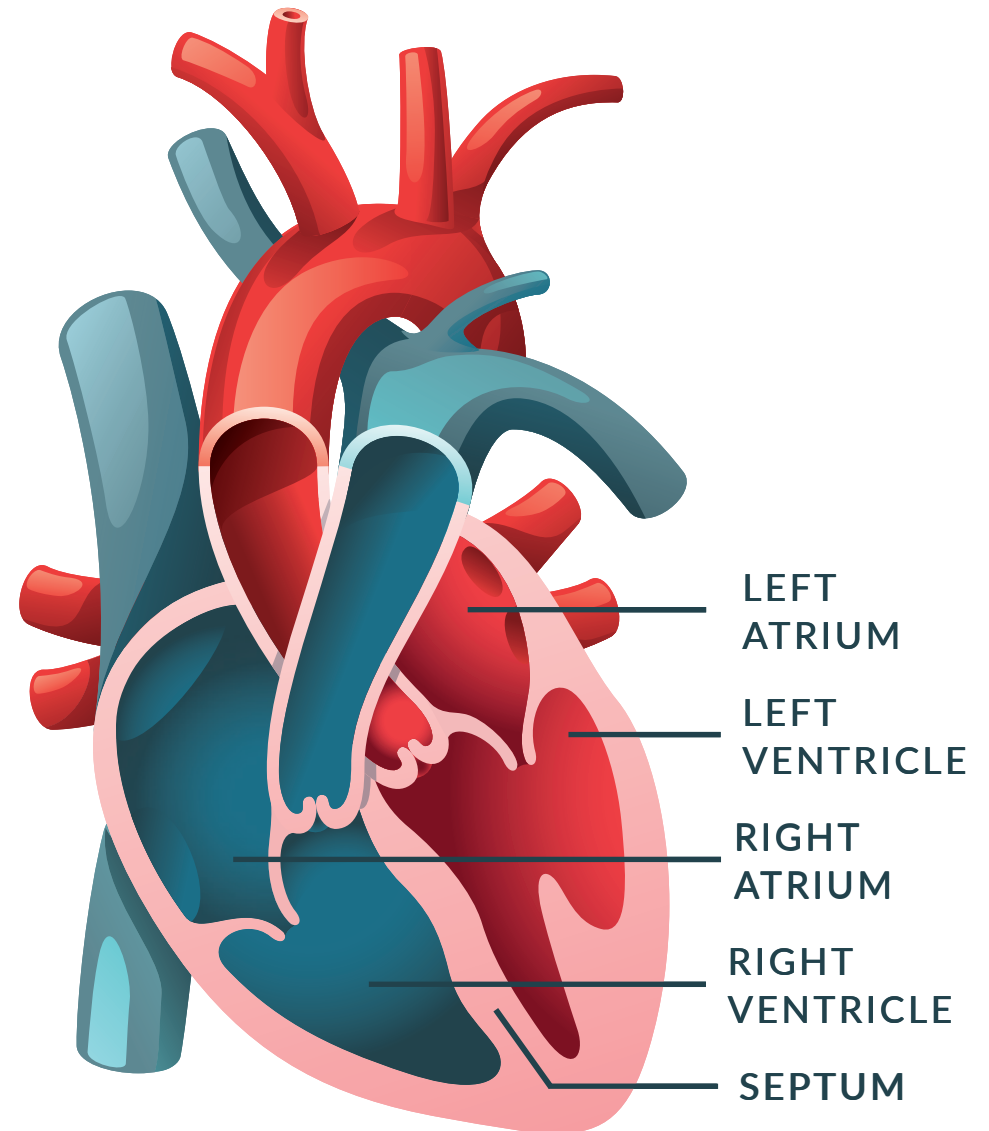
Causes · Symptoms · Treatment Options



# THE HEART: CENTRAL CIRCULATORY ORGAN

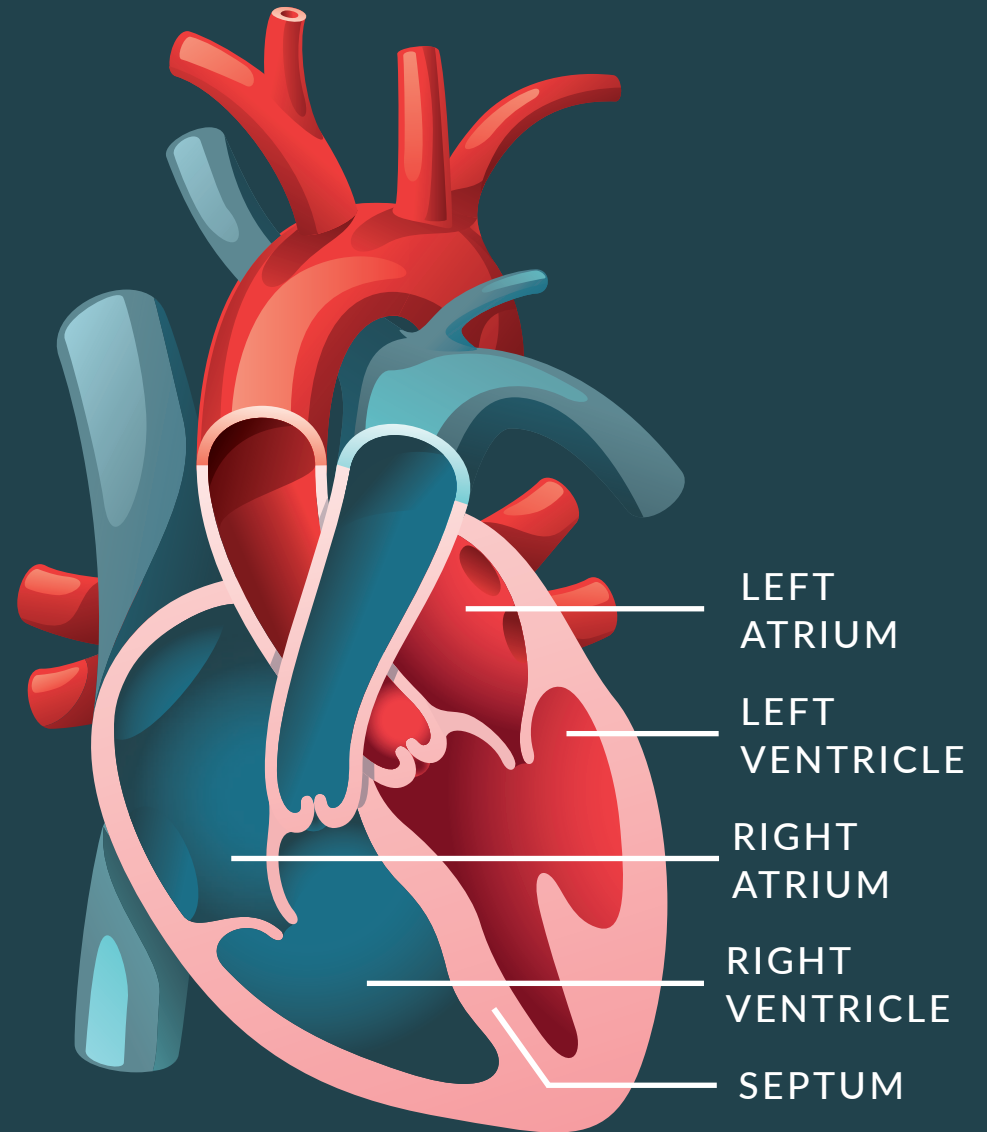
The heart's vital function in the body is to pump oxygenated blood from the lungs to the body's tissues and organs. The heart is divided into four chambers and each is important for blood circulation.

The **left ventricle** is very important to your physical wellbeing and has to work properly to be able to pump enough blood to supply the organs with oxygen.



# THE HEART: CENTRAL CIRCULATORY ORGAN

- 1 Describe the anatomy of the four chambers of the heart and explain each of their roles in blood circulation (pump action and oxygen supply).
- 2 Discuss the importance of a properly working left ventricle for physical wellbeing.



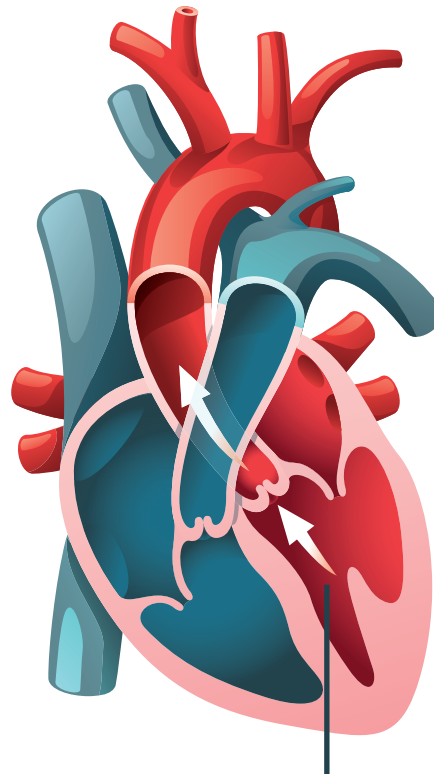
# POSSIBLE EFFECTS OF A HEART ATTACK

The coronary arteries supply oxygenated blood to your heart muscle. Narrowing or blockage of one or more of these arteries may cause a heart attack.

A heart attack can damage the left ventricle and cause structural changes that interfere with the healthy functioning of the heart muscle:

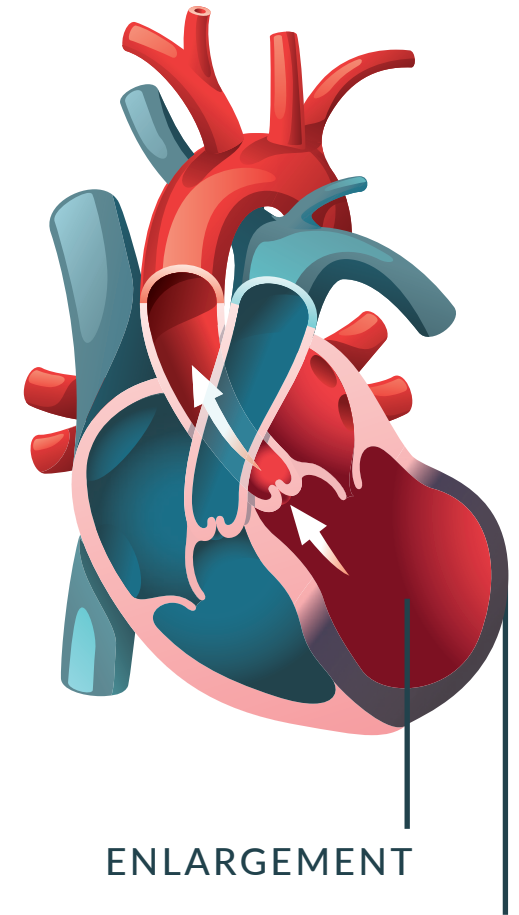
- Scarring in the muscle tissue
- Enlargement of the ventricle

NORMAL HEART



NORMAL LEFT VENTRICLE

AFTER A HEART ATTACK



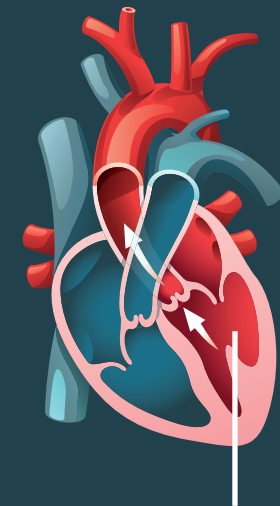
ENLARGEMENT

SCARRING

# POSSIBLE EFFECTS OF A HEART ATTACK

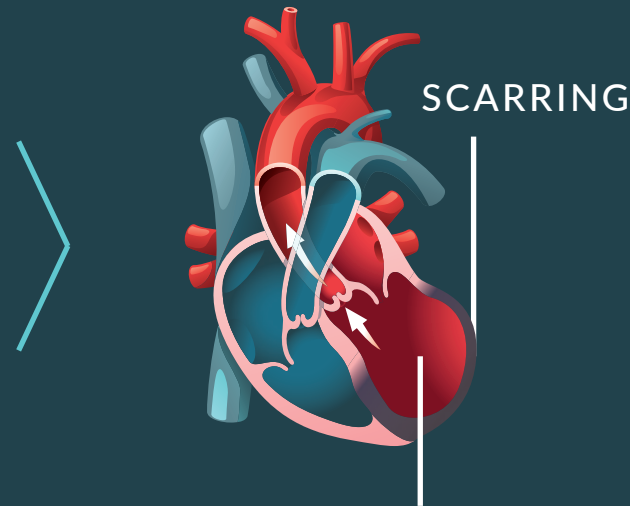
- 1 Explain the causes of a heart attack (narrowing, blockage of coronary arteries).
- 2 Describe the structural changes to the left ventricle caused by a heart attack (scarring of the muscle tissue and enlargement of the ventricle).

NORMAL HEART



NORMAL LEFT  
VENTRICLE

AFTER A HEART ATTACK



ENLARGEMENT

## FACTS AND FIGURES:

- *Every year, roughly 1.4 million people worldwide have a heart attack.*
- *84% of heart attack victims survive the event.*

# SYMPTOMS AND CLASSIFICATION OF HEART FAILURE AFTER A HEART ATTACK

As a result of a heart attack, the performance of your heart may be reduced (heart failure). The heart will then fail to pump enough blood through the body, and several symptoms of heart failure can occur. To track your heart health, you may be rated in a certain class based on your heart failure symptoms according to the New York Heart Association (NYHA) classification.

## SYMPTOMS

- SHORTNESS OF BREATH
- FATIGUE
- REDUCED ABILITY TO PERFORM PHYSICAL ACTIVITY
- FLUID IN THE LUNGS AND SWELLING IN THE LEGS
- RAPID OR IRREGULAR HEARTBEAT

## NYHA CLASSIFICATION

## PATIENT CHARACTERISTICS

I (MILD)

Known heart disease, no limitation of physical activity

II (MILD)

Slightly reduced physical activity, symptoms during ordinary physical activity

III (MODERATE)

Severely reduced physical activity, symptoms even during mild physical activity

IV (SEVERE)

Symptoms during all physical activities and at rest

# SYMPTOMS AND CLASSIFICATION OF HEART FAILURE AFTER A HEART ATTACK

- 1 Describe the effects of reduced heart function (heart failure).
- 2 Explain the resulting symptoms and discomforts.
- 3 Show the relationship between the symptoms and the rating in the NYHA classification system.
- 4 Show how you classify patients in which NYHA class, which class the patient is in, and why intervention is important before heart failure progresses.
- 5 Name the medications that are used for heart failure and explain that a fundamental structural change to the heart does not go away despite therapy.

## NYHA CLASSIFICATION

## PATIENT CHARACTERISTICS

I (MILD)

Known heart disease, no limitation of physical activity

II (MILD)

Slightly reduced physical activity, symptoms during ordinary physical activity

III (MODERATE)

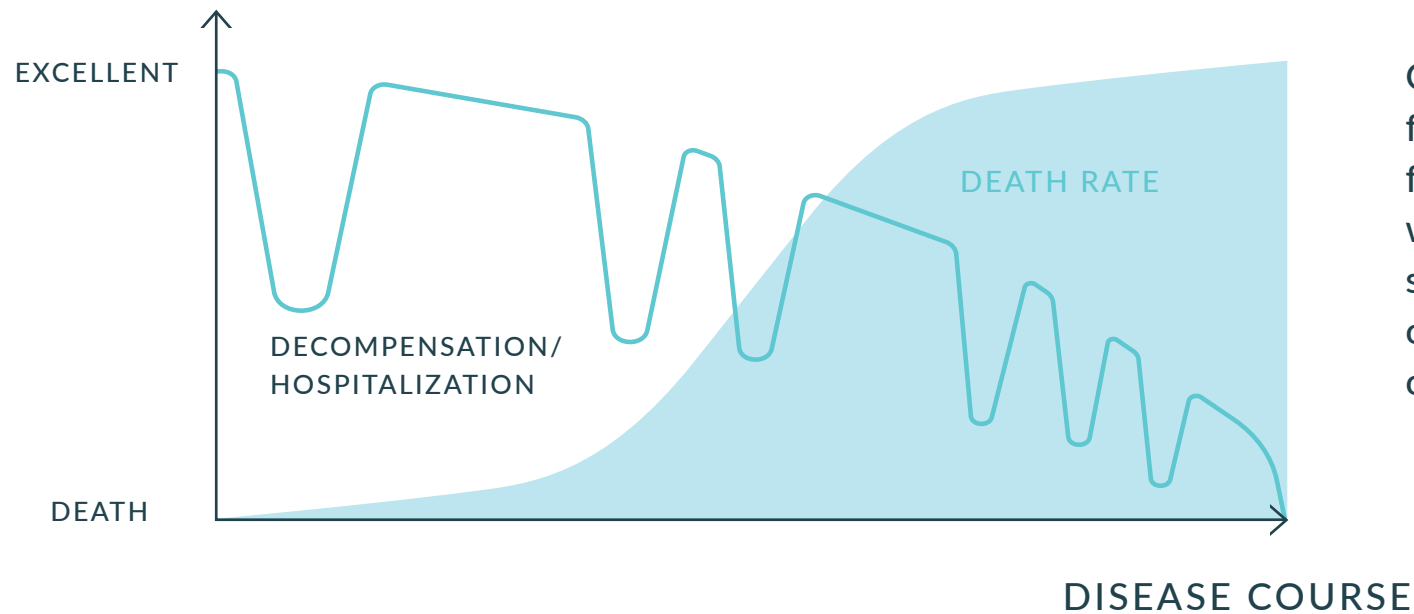
Severely reduced physical activity, symptoms even during mild physical activity

IV (SEVERE)

Symptoms during all physical activities and at rest

# TYPICAL COURSE OF HEART FAILURE

## QUALITY OF LIFE AND HEART PERFORMANCE



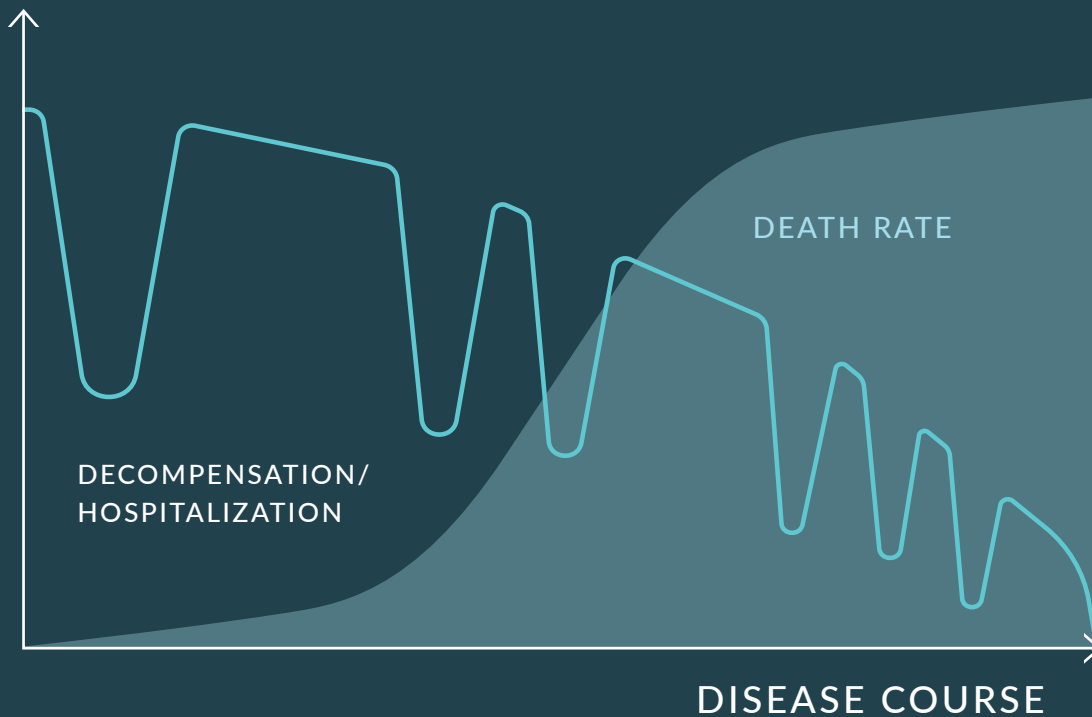
Over time, heart failure usually follows a typical course which fluctuates between episodes of worsening (for example, increased shortness of breath or buildup of fluid in your legs) and phases of improvement.





# TYPICAL COURSE OF HEART FAILURE

## QUALITY OF LIFE AND HEART PERFORMANCE



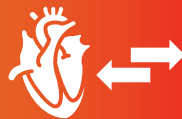
- 1 Discuss the course heart failure can take.
- 2 Explain the relationship between individual signs of decompensation and how the prognosis gets worse as a result.
- 3 Point out that heart failure can also (seemingly) be without symptoms and mention the risk that this poses.
- 4 In this context, show why it is important to be treated and not to wait, and describe the range of potential treatments.



HEART FAILURE  
MEDICATION



INTERVENTIONAL  
TREATMENT  
LIVE THERAPY

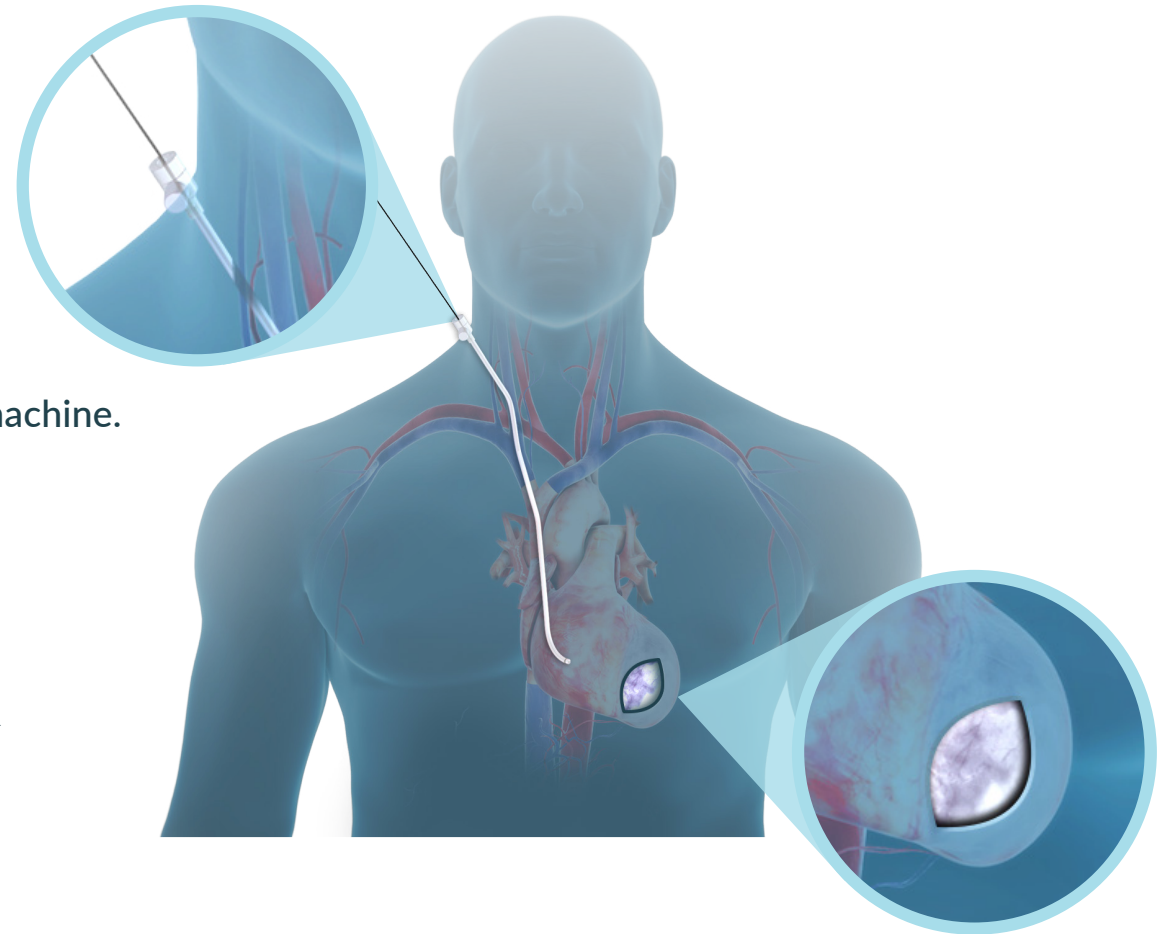
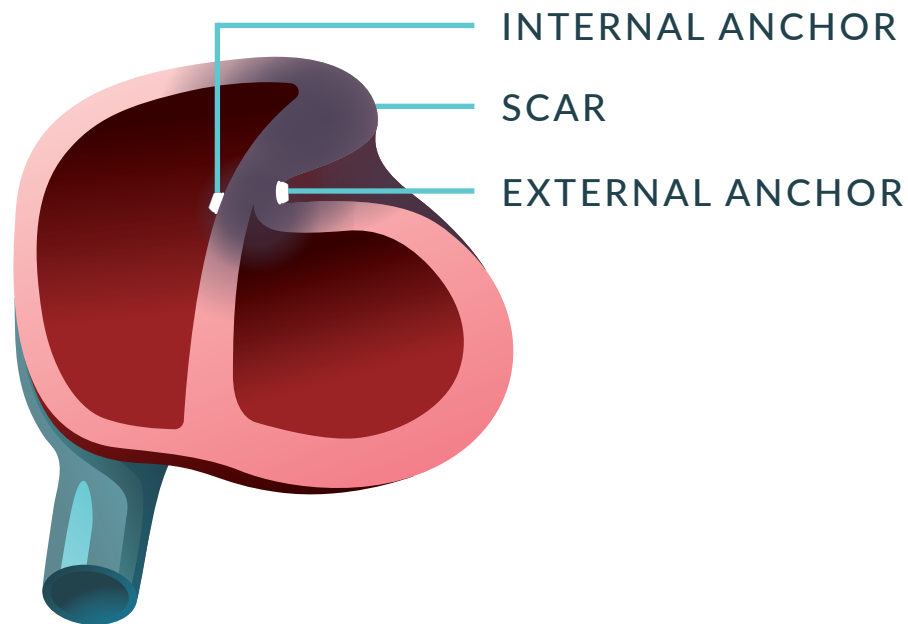


ARTIFICIAL HEART  
HEART IMPLANT  
VAD

# LIVE THERAPY: A TREATMENT OPTION FOR A SCARRED HEART

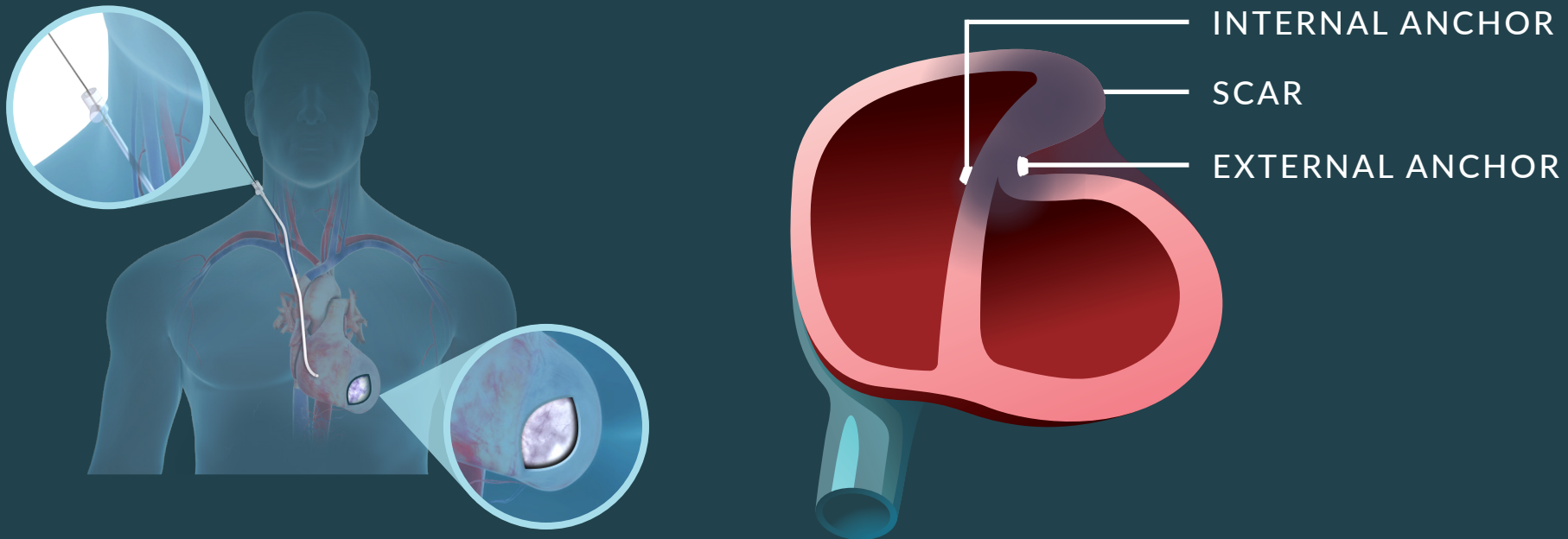
Less Invasive Ventricular Enhancement (LIVE) therapy is a hybrid technique for excluding the scar on the left ventricle.

- The procedure combines a minimally invasive surgical approach with the techniques used in heart catheterization technology.
- Treatment is performed without a sternotomy.
- The procedure is carried out without a heart-lung machine.



## LIVE THERAPY: A TREATMENT OPTION FOR A SCARRED HEART

- 1 Introduce LIVE therapy for a scarred heart following a heart attack.
- 2 Describe the procedure and explain the extent to which the hybrid procedure combining left lateral mini-thoracotomy and catheter intervention is less invasive for patients (no median sternotomy or cardiopulmonary bypass).
- 3 Talk about the cooperation between the heart team consisting of an interventional cardiologist and a cardiothoracic surgeon.



# ADVANTAGES OF LIVE THERAPY

The goal of LIVE therapy is to improve your heart's function and ability to pump blood. As a result of improved blood circulation to your body and organs, you may see an improvement in the following areas:

## PATIENT DATA AFTER ONE YEAR



QUALITY OF LIFE  
IMPROVED BY:

**34%**



NYHA CLASS  
IMPROVED BY:

**26%**



6 MINUTE WALK TEST  
IMPROVED BY:

**21%**



PUMPING EFFICIENCY  
IMPROVED BY:

**16%**

# ADVANTAGES OF LIVE THERAPY

- 1 List the advantages and effects of LIVE therapy (minimally invasive, improved quality of life, improvement in NYHA Class, improved blood circulation, increase in activity).

## PATIENT DATA AFTER ONE YEAR



QUALITY OF LIFE  
IMPROVED BY:

**34%**



NYHA CLASS  
IMPROVED BY:

**26%**



6 MINUTE WALK TEST  
IMPROVED BY:

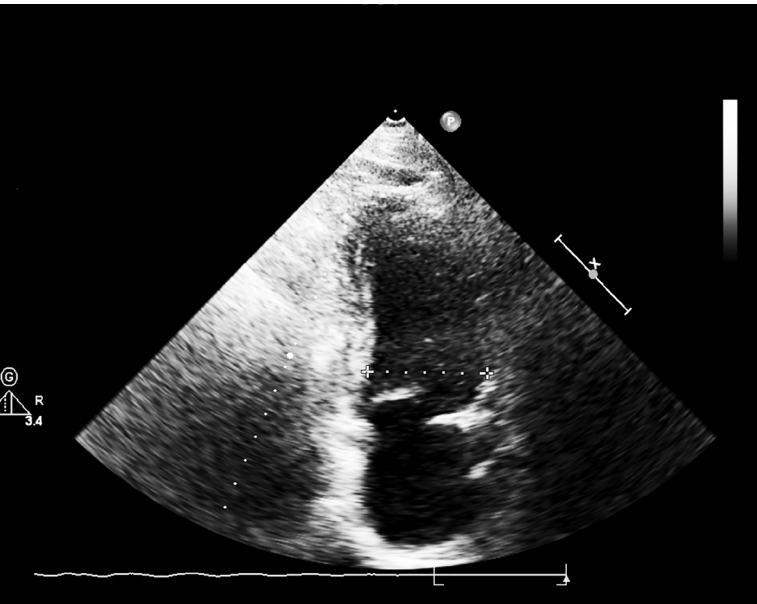
**21%**



PUMPING EFFICIENCY  
IMPROVED BY:

**16%**

# PRELIMINARY TESTS



The ultrasound examination in the cardiology practice provides an initial assessment of whether LIVE therapy is a treatment option for you.

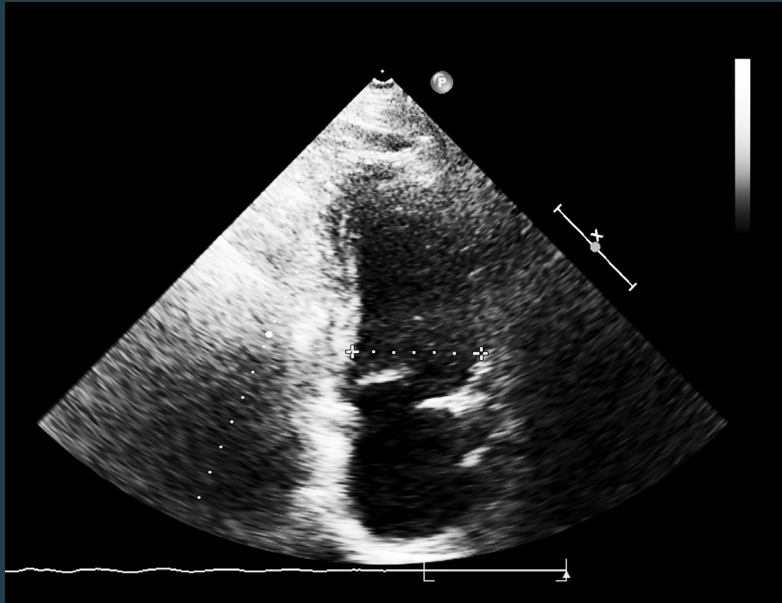


If the assessment is positive, other imaging tests (CT or MRI scans) need to be performed to determine the exact size and location of the scar on the left ventricle. The results of these tests will allow us to evaluate whether LIVE therapy is the right treatment option for you.

# PRELIMINARY TESTS

1

Point out the tests that are needed to assess whether LIVE therapy is a possible treatment option (echocardiography in the practice and CT or MRI scans in the heart center).



# LIVE THERAPY IN DETAIL

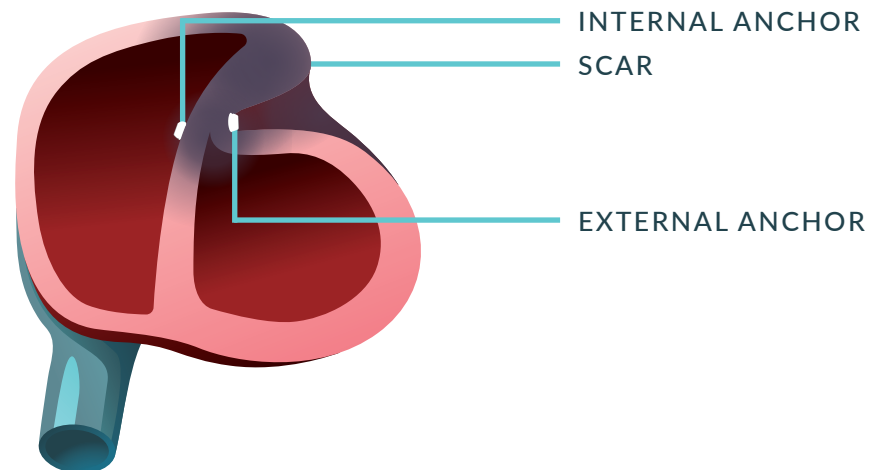
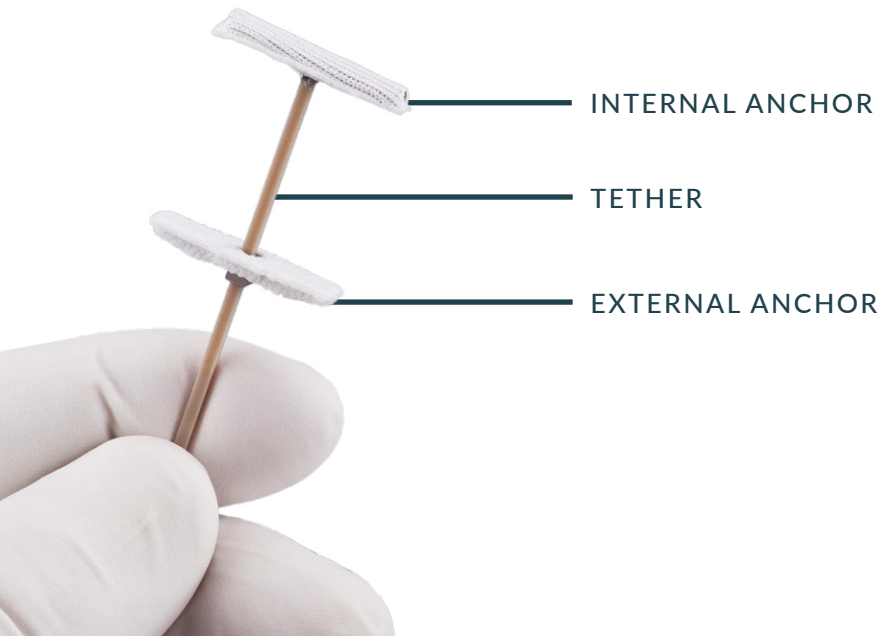
*Average  
Procedure Time:*  
**2-3 HOURS**

LIVE therapy with the help of the Revivent TC™ TransCatheter Ventricular Enhancement System:

- Pairs of anchors are implanted along the scar.
- The internal and external anchors are tightened using a tether.
- The scarred region is excluded.

The result:

- The remaining area of the left ventricle can work more efficiently.
- Blood flow to the body improves.





# LIVE THERAPY IN DETAIL

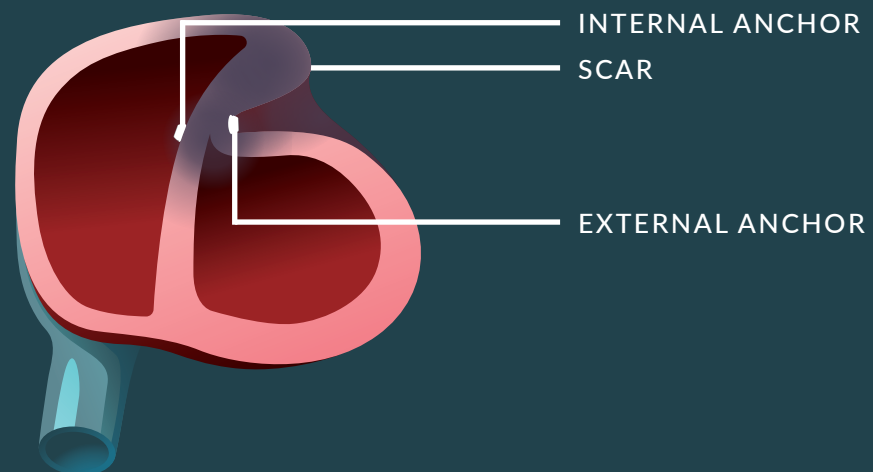
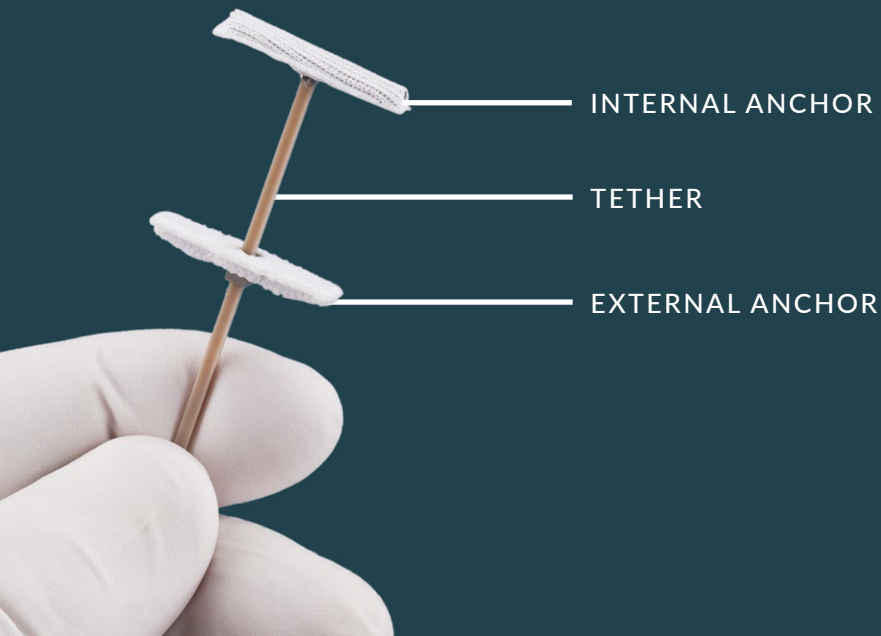
- 1 Describe LIVE therapy and the design of the Revivent TC™ TransCatheter Ventricular Enhancement System (internal anchor, tether, external anchor). An animation for illustrating the procedure can be found here:

[bioventrix.com/index.php/en/physicians-eng/revivent-tc](http://bioventrix.com/index.php/en/physicians-eng/revivent-tc)

- 2 Illustrate the expected result.  
(Improvement in pumping force and improved blood circulation to the body)



**Average  
Procedure Time:  
2-3 HOURS**



# FOR YOUR HEALTH - AFTER LIVE THERAPY

After LIVE therapy, you need to take action to achieve a long-term improvement in your quality of life. Focus on taking the following steps for your health:

- 1 Show up for all appointments and follow-ups.
- 2 Follow your doctor's instructions.
- 3 Take your medication as directed.
- 4 Be active.
- 5 Make sure you have a healthy diet.



You can find more information at [www.bioventrix.com](http://www.bioventrix.com).



# FOR YOUR HEALTH - AFTER LIVE THERAPY

- 1 Mention the postoperative stay in the hospital (~4-5 days).
- 2 Go over the most important steps that are necessary to maintain an improved quality of life after LIVE therapy.
- 3 Stress the importance of patient compliance and of continuous use of medication.



Only physicians or persons under the instruction of a physician may use this product. Prior to the use of this product, it is important to read the package insert carefully, including the instructions for use, warnings, and potential complications that could occur during use of this product.

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