**Heart Failure**

It is crucial for humans to stay alive, the heart. This throbbing miracle is located in the chest, under the sternum. Contrary to popular belief, the heart is not on the far left in the chest, the organ is approximately in the middle, a little bit Afbeelding met kleding

Automatisch gegenereerde beschrijvingto the left. The heart supplies all organs with blood by means of (stroke) veins and capillas. The blood moves through the veins because the heart pumps, the pumping movements that the heart makes cause pressure in the (stroke) veins, this is the blood pressure. The blood pressure causes the valve to open. Then the blood flows into the right ventricle. Then, again because of the blood pressure, the blood goes through the pulmonary artery to the lungs. Oxygen-rich blood comes back and ends up in the left atrium. Then the valve opens up, this allows the blood to enter the left ventricle. Finally the blood leaves the heart through the aorta and makes its way to the organs and muscles.

The heart pumps in a certain rhythm, that rhythm depends on how active the person in question is. Is a person at rest, the heart rhythm is quite low, between 60 and 100 beats per minute. In a person in action, this is often higher, about 120 heartbeats per minute or more. This rhythm is maintained by the sinus node. This gives impulses that go through the AV node (the image below)  to the heart muscles. These then contract, causing the blood in the chambers and atria to be pumped further. In all these processes, heart diseases can occur, some can be solved, others cannot. A couple examples of heart diseases are:

Acute heart failure

* Heart attack (artery blockage)

Cardiac arrhythmias

* In cardiac arrhythmias, the electrical impulses in the heart go out of the rhythm, due to changes in the heart tissue during cardiac activity. The heart pumps too fast, too slowly or in an irregular rhythm. As a result, organs and muscles receive too little oxygen. This can lead to acute cardiac arrhythmias.

Blood pressure and cholesterol

Causes of heart failure

* Too high cholesterol
* Smoking (damaged vein wall)
* High blood pressure
* Stress hormones
* No blood supply in coronary artery
* Depolarization and closure of gap junctions in heart muscle allowing no electrical activity
* Slow and abnormal conduction impulses
* Causes accelerated heart rhythm in which heart chambers close too quickly and too little blood is pumped around (re-entry).
* Decrease in MAP causes more re-entries, which ultimately means that no contraction takes place at all.

Risk factors

* Biological risk factors
* Age
* Gender
* Family tax
* Expression of disrupted mechanisms
* High blood pressure
* High cholesterol
* Impaired glucose tolerance (diabetes)
* Acquired risk factors
* Smoke
* Nicotine
* Carbon monoxide
* Free radicals
* Substances ensure that blood clots faster
* Excessive alcohol consumption
* One-sided power supply
* Certain personality traits
* Overweight
* LDL cholesterol levels increase and HDL cholesterol levels decrease
* Increase in blood pressure
* Impaired glucose tolerance (diabetes)

It seems logical to us that the above variables are the most important to predict heart failure.

Factors affecting heart failure:

* Genetics (<https://www.jci.org/articles/view/24351/pdf>)
* High blood pressure (<https://www.ahajournals.org/doi/abs/10.1161/01.HYP.18.3_Suppl.I95>)
* (Stroke) vein calcification

**Sources**

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