

## The effects that being overweight has on the body

Nowadays it is usually the Body Mass Index (BMI) that determines whether someone is overweight or not. The BMI is calculated by dividing body weight [kg] by the square of someone's height [m<sup>2</sup>]. The formula is:

**BMI = body weight: (height in m)<sup>2</sup>**

The BMI unit is therefore kg/m<sup>2</sup>.

This means that a person who is 160 cm tall and has a body weight of 60 kg has a BMI of 23.4 [60 : (1.6 m)<sup>2</sup> = 23.4].

The BMI gives an index for the body fat mass. The following figures have been defined to classify the seriousness of being underweight/overweight:

Classification	Male	Female
Underweight	<20	<19
Normal weight	20 - 25	19 - 24
Overweight	25 - 30	24 - 30
Obesity (pathological overweight)	30 - 40	30 - 40
Massive obesity	>40	>40

The "desirable" BMI depends on age. The following table shows the BMI for different age groups:

Age	BMI (Body Mass Index)
19 - 24	19 - 24
25 - 34	20 - 25
35 - 44	21 - 26
45 - 54	22 - 27
55 - 64	23- 28
>64	24 - 29

The negative health consequences of being overweight are manifold and affect almost every organ as you have to carry around and nourish every extra kilogram. This naturally puts a strain on the entire organism. The most frequent complications are as follows:

### Arteriosclerosis

**Deep vein thrombosis** (partial or complete closure)

### Blood pressure

About 1/3 of the adult population suffers from high blood pressure (hypertony) and the numbers are increasing. The frequency of high blood pressure increases with age.

### Cholesterol

An excessive level of cholesterol in the blood requiring treatment (hypercholesterinaemia), increased blood fats, affects roughly one third of all adults and occurs more frequently in women than in men. This risk increases significantly as we get older.

### Joints /orthopaedic problems

Overweight puts excessive strain on the joints, particularly in the area of the lower spine, in the hip joints and in the knee and ankle joints. The excessive weight on the joints accelerates wear and tear and leads to chronic pain. Very often the only solution is permanent dependence on pain killers or an operation.

### **Cardio-vascular system**

When someone is overweight the heart has to work harder in order to supply the fatty tissue with sufficient blood. The body also retains more water and sodium, which promotes the development of high blood pressure. This also puts strain on the heart. The consequences are: angina pectoris, myocardial infarction and chronic cardiac insufficiency, breathing difficulty and shortness of breath when asleep, sudden apnoea (when breathing stops) lasting longer than ten seconds (sleep apnoea syndrome)

### **Cancer**

Cancer is a collective term for more than a hundred different disease patterns (cancer of the breast, cancer of the prostate gland, cancer of the colon and cancer of the uterus, etc.). What they all have in common is that the growth of human tissue or the organs ceases to follow normal control mechanisms. Tumours are formed that can spread through the body with fatal consequences.

### **Lungs**

Our lungs also have to do more work in order to supply the increased need for oxygen. However the capacity of the lungs is often insufficient so a chronic undersupply of oxygen develops. This is intensified through breathing difficulties, shortness of breath when asleep and sudden apnoea lasting longer than ten seconds (sleep apnoea syndrome). The persons affected complain of drowsiness during the day, loud snoring and restless sleep. These symptoms usually disappear completely after the person affected loses weight.

### **Osteoporosis**

Osteoporosis promotes bone fractures (mainly of the femoral neck) and frequently occurs in women after the menopause, although older men are also affected. Accidents are becoming more frequent as more and more people are reaching old age. The causes of osteoporosis are multiple, but a sufficient supply of calcium (milk products) when young and sufficient physical exercise throughout life are very important to preserve the bone mass and to prevent osteoporosis.

### **Rheumatic diseases**

Research into the effect of certain types of food on the progression of the various forms of rheumatic diseases is still inadequate. The most frequently researched form is chronic polyarthritis. The most frequent inflammatory-rheumatic disease is rheumatoid arthritis (also known as chronic polyarthritis). It attacks around 0.8 % of the population and occurs two to three times more frequently in women than in men. But the symptoms of wear and tear caused by old age include many other forms of rheumatic pain and rheumatism is therefore regarded as a common health problem.

### **Psychological problems**

Inferiority complexes and lack of self-esteem

### **Strokes**

Strokes are in third place in statistics concerning causes of death and are among the most frequent causes of invalidity at an advanced age. The risk of suffering a stroke rises significantly as we get older.

### **Complications during pregnancy**

#### **Diabetes**

Overweight is the most important risk factor for the development of diabetes, type 2 (non-insulin dependent diabetes).