

# Diabetes Mellitus

## What is it?

*Diabetes Mellitus*, or just *Diabetes*, is an un reversible endocrine illness that primary affects the metabolism of glucose. Diabetes is categorised as *Type 1*, *Type 2* or *Gestational*. *Type 1* is caused by autoimmune diseases destroying the cells that release insulin; hence, no insulin available. *Type 2* is caused by a combination of genetics and lifestyle and will most often affect the receptors of insulin; hence, insulin will be present in the body but no cells to react to it. *Gestational* is associated with pregnancy and will often disappear after given birth, though, if diagnosed with *Gestational Diabetes* you will be more prone to develop *Type 2 Diabetes* later in life (see the section “How to prevent it?”). *Type 1* requires pharmaceutical treatment with insulin, which is not always the case with the other two types. However, in all types, a healthy lifestyle will help minimize or delay the development of secondary diseases associated with *Diabetes*. Hence, diabetes cannot be reversed but it can be managed. In the following only *Diabetes Type 2* is mentioned, as that is the one type that in most cases can be managed through lifestyle; however, the guidelines will benefit all people diagnosed with any type of diabetes or in risk of developing it.

## What causes it?

Developing *Diabetes Type 2* is a combination of genetics and lifestyle factors. If you have close relatives diagnosed with *Diabetes* you will not automatically get it, but you will be more susceptible to develop disturbances in the glucose metabolism. If you combine the genetic susceptibility with an unhealthy lifestyle, then you might be in risk for developing *Diabetes* later in life. In this case, an unhealthy lifestyle is defined as a poor diet combined with a sedentary lifestyle.

## How does it affect my body?

The hormone *Insulin* is one of the main regulators of the glucose metabolism – but in *Diabetes* the signalling from insulin is disturbed. When the metabolism does not work properly, the body is not able to efficiently take up glucose; hence, it is left to circulate in the blood stream. The human metabolism is very complex and missing signalling from insulin causes disturbances in the fat metabolism too. Fat is not absorbed in the body as efficiently as in individuals not suffering from diabetes; hence, fat is also released to circulate in the blood stream. If the circulating glucose and fat is left unmanaged, it will

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occasionally cause a lot of damage to the cardiovascular system (e.g. veins, arteries, heart etc.). As described above, unmanaged *Diabetes* put a lot of stress on the body and will cause secondary diseases if not managed properly. Some of the most common complications are listed below:

- Retinopathy – damage of the small blood vessels in the eyes. Will in worst case cause blindness.
- Nephropathy – damage of the small blood vessels in the kidneys. Will in worst case cause chronic kidney failure.
- Neuropathy – damage of the nerves...
- Arteriosclerosis – damage of blood vessels in extremities like feet, hand and fingers. Will in worst case cause amputation.
- Coronary heart disease
- Stroke

All these complications can be minimized or delayed through a healthy lifestyle based on a proper diet, combined with regular physical activity.

### How do I prevent it?

If you are genetically predisposed for *Diabetes* or have suffered from *Gestational Diabetes* during pregnancy, it is crucial for your prevention of developing *Diabetes Type 2* that you focus on having a healthy lifestyle. Eating a proper diet will help your body to maintain homeostasis in both glucose and fat metabolism. A proper diet is a diet high in complex carbohydrates (dietary fibres and starches) and low in saturated and total fat. Furthermore, exercise is an important part of managing or preventing *Diabetes*. As described in the beginning, *Diabetes Type 2* is caused by a destruction of insulin receptor cells but the body can manage without – it just needs some help from you. Every time we move muscles in our body we initiate a similar process of absorbing glucose; hence exercise and general physical activity will help the body to make the glucose metabolism work even though the receptor cells are destroyed.

### How do I manage it?

As mentioned earlier you can, most often, prevent or manage *Diabetes* through a healthy lifestyle. A healthy lifestyle is a combination of a proper diet and regular physical activity. The diet is suppose to be high in complex carbohydrates (i.e. dietary fibers and starches) and low in saturated and total fat. In that way you can minimize the amount of circulating glucose and fat in the blood stream. Furthermore, you can help your body's uptake of glucose and fat by following the general recommendations of physical activity: 30 minutes of moderate physical activity most days of the week supplemented by 60 minutes of hard physical activity once a week.

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