



# Diabetes

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## Overview

- 2 types of Diabetes
- What causes diabetes?
- symptoms
- how it is diagnosed
- regulation of blood glucose
- insulin

## Type 1 Diabetes

- it is an autoimmune disease
- your insulin-producing cells are being destroyed
- pancreas stops making insulin
- children and adolescents
- illness develops quickly

## Type 2 Diabetes

- people over 40
- connected with being overweight
- illness develops gradually
- the pancreas still produces insulin but it does not work correctly

## What causes diabetes?

### Type 1:

- environmental factors
- problems with the immune system
- heritable

## What causes diabetes?

### Type 2:

- being overweight
- lack of exercise
- medication like cortisone

## Symptoms

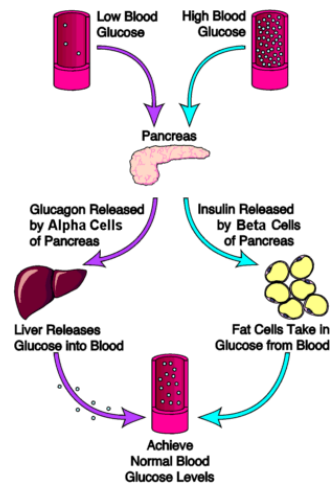
- passing of urine
- feeling thirsty and drinking a lot
- losing weight
- tiredness
- changing mood

## Diagnosed

- Blood test
  - for the blood glucose level
- Urine test
  - for glucose and ketones

## Normal regulation of blood glucose

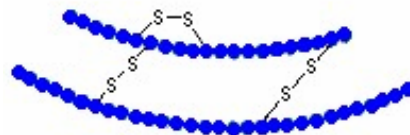
- Is the blood glucose level higher than normal, the pancreas produces insulin
- Is the blood glucose level lower than normal, the pancreas produces glucagon



<http://www.endocrineweb.com>

## Insulin

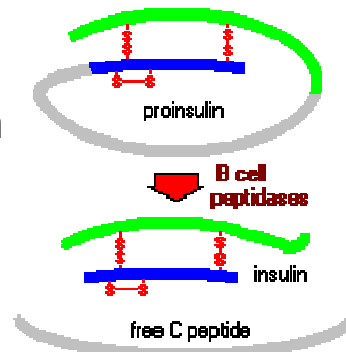
- it is a hormone and produced in the beta cells
- stimulates liver and muscle cells to store glucose
- has two chains
  - A chain: 21 amino-acids
  - B chain: 30 amino-acids



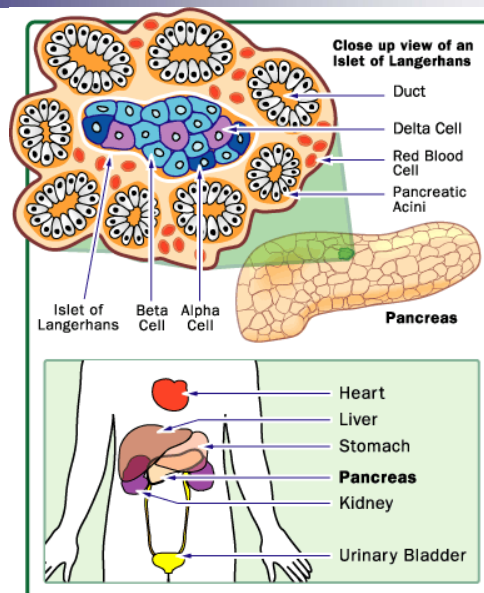
<http://www.medizinfo.de>

- the chains are linked with the help of disulfide bridges

- pre-production: proinsulin



<http://www.vivo.colostate.edu>



<http://health.howstuffworks.com>

## Commercial Insulin

- today we use human insulin
- human gene with the insulin code was cloned
- put into bacteria
- the bacteria produces insulin

- before they began to produce human insulin they were using bovine insulin (cow) oder porcine insulin (pig)
- they say that it is impossible to get an allergic reaction because of human insulin

## Is this really the truth?

- some people get an allergy because of human insulin
- some symptoms: unconsciousness, being tired, allergical dermal reaction
- with animal insulin the symptoms disappeared

## Summary

- diabetes means that your blood glucose level is higher than normal
- there are two different types
- your insulin has got a high importance cause it regulates your blood glucose
- human insulin is not always the best





## Sources

<http://health.howstuffworks.com>

<http://www.modernes-tierisches-insulin.de>

<http://www.endocrineweb.com/diabetes/2insulin.html>

[http://www.rch.org.au/diabetesmanual/manual.cfm?doc\\_id=2729](http://www.rch.org.au/diabetesmanual/manual.cfm?doc_id=2729)

<http://www.medizinfo.de/diabetes/diasto3.htm>

<http://de.wikipedia.org/wiki/Diabetes>

<http://www.diabetikerbund-hamburg.de>

<http://www.mydr.com.au>