

# Diabetes mellitus type 1 (biochemistry)

**Type 1 diabetes mellitus** is characterized by an absolute or almost complete lack of endogenous insulin and lifelong dependence on the application of exogenous insulin. Patients are prone to ketoacidosis.

The disease arises as a result of the **selective destruction of  $\beta$ -cells of the Langerhans islets in pancreas** by an autoimmune process in genetically predisposed individuals. The triggering mechanism of the autoimmune process is probably a viral infection or contact with another exogenous or endogenous agent.

The clinical picture of type 1 diabetes mellitus depends on the aggressiveness of the autoimmune process. In childhood and adolescence, when most diseases develop, the last phase of  $\beta$ -cell destruction tends to be very rapid, so diabetes manifests itself with classic acute symptoms (including ketoacidosis). At a later age, the disease has a significantly slower onset and only after some time results in complete dependence on insulin. Insulin secretion may be reduced for several years, but sufficient to prevent ketoacidosis. The clinical course of the disease is therefore similar to type 2 diabetes mellitus, and it is reported that about one in ten patients originally classified as type 2 diabetes has a slowly progressing type 1 diabetes - **latent autoimmune diabetes of adults (LADA)**.<sup>[1]</sup>

Type 1 DM is a less common form of diabetes that occurs in about 7% of diabetics. The classic symptoms of type 1 DM are thirst, polyuria and weight loss.

Comparison of the characteristics of type 1 and type 2 DM at the onset of the disease

Diabetes mellitus type 1		Diabetes mellitus type 2
	LADA	
insulin secretion is absent	postupný zánik sekrece inzulinu	insulin resistance, lower insulin secretion
typical onset in childhood and adolescence	typický začátek v dospělosti	typical onset after 40 years
ketoacidosis		
more often a lower BMI		more often a higher BMI
positive autoantibodies		negative autoantibodies
C-peptide absent	C-peptide decreased	C-peptide normal or increased
immunoreactive insulin absent	immunoreactive insulin decreased	immunoreactive insulin normal or increased

## Links

### Related articles

- Diabetes mellitus
- Diabetes Mellitus/type 2

### Reference

1. NAIK, Ramachandra G - BROOKS-WORRELL, Barbara M - PALMER, Jerry P. Latent autoimmune diabetes in adults. *J Clin Endocrinol Metab* [online]. 2009, vol. 94, no. 12, p. 4635-44, Available from <<https://academic.oup.com/jcem/article/94/12/4635/2596267>>. ISSN 0021-972X (print), 1945-7197.