

## **Abstract**

This bachelor thesis describes the connection between insulin and carbohydrates in the context of metabolism and the most significant disorder of these physiological processes in form of diabetes mellitus. It also discusses insulin treatment options with an emphasis on the nutritional aspect.

The theoretical part is divided into three complex units. The first represents description of carbohydrate metabolism in a healthy person and introduction of insulin as an essential substance in this process. The second part is devoted to the representation of pathophysiological disorder, its causes and risk factors. There are also in detail described two basic types of the disease - type 1 and 2. The third part provides information about treatment. It focuses on possibilities of nutritional and pharmacological therapy.

The last part of the theoretical part leads to research work, which examines the influence of education and change of insulin therapy from fixed to flexible dosing in patients with type 2 diabetes mellitus. Patients were observed for six weeks and during this time they were repeatedly educated. The relevant evaluation was made based on changes in glycated haemoglobin values and records from blood glucose meters.

This research found how much this change has the potential to improve control of diabetes mellitus and whether patients are sufficiently motivated to acquire new principle of dosing. Surveyed people worked together almost seamlessly, managed the new system quickly and despite the time limitations of the project results are indicating improvement in the overall compensation of the disease. Decrease of glycated haemoglobin was showed in almost every patient and as well as lower number of risk values of glycaemia during patients' selfmonitoring.

The results of this study make it possible to work with the potential of this style of dosing in type 2 diabetes patients, its realistic extension and it also offers the possibility of further nutritional treatment for motivated patients.

**Keywords:** carbohydrates, insulin, diabetes mellitus, therapy of diabetes mellitus, insulin dosing