

## **Abstract**

Type 2 diabetes mellitus (T2D) is a highly prevalent metabolic disorder linked with the development of specific complications and comorbidities that negatively affect life quality and greatly increase the risk of an early death. The main goal of T2D treatment, which in common clinical practice comprises lifestyle changes and pharmacotherapy, is to delay onset of these complications. Evidence from many recent studies shows the ability of some interventional methods to induce remission of T2D, meaning a major improvement or complete disappearance of T2D symptoms. Besides bariatric surgery procedures, some dietary regimens such as low-energy diet, low-carbohydrate diet and intermittent fasting, can also lead to T2D remission. Attributes of these dietary regimens, especially their effect in T2D treatment, is summarized in the theoretical part of this theses.

The aim of the practical part of this thesis was to assess the effect of the dietary regimens mentioned above on morphometric and biochemical parameters associated with T2D by clinical and survey research. In most of the subjects with T2D, the individual dietary regimens, more precisely low-energy diet and low-carbohydrate diet, decreased body weight, where the weight loss induced by low-carbohydrate diet was caused by major decrease in the amount of fat mass compared to skeletal muscle mass. Most of the subjects also detected a decrease in fasting glycaemia levels or HbA1c levels. Further, dietary carbohydrate restriction lead to a decrease of serum triglyceride levels. A majority of subjects with T2D were satisfied with the selected dietary regimen and plan on maintaining the diet.

Based on the results obtained in this thesis, the tested dietary regimens, namely low-energy diet and low-carbohydrate diet, improve both morphometric and biochemical parameters of T2D and its comorbidities. The introduction of these dietary regimens in common clinical practice could be a suitable alternative to conventional treatment leading to major improvement or remission of this disorder.