Streszczenie pracy w języku angielskim - Summary of the work in English

Diabetes is a metabolic disease characterized by hyperglycaemia resulting from a defect in insulin secretion and/or action. Of the 5 types of diabetes, type 2 diabetes has been addressed in this study. The essence of this disease is the insufficient amount of insulin secreted by pancreatic β cells to maintain blood glucose at a normal level, or insulin resistance consisting in lowering the sensitivity of human body cells and tissues to this hormone. In connection with the widespread problem of diabetes, scientists are still conducting research on the treatment and prevention of this disease. Research is constantly being conducted to broaden the knowledge on the influence of various factors (including pharmacological, nutritional, environmental) on people with type 2 diabetes. The implementation of rational nutrition in this disease entity is of particular importance in the overall treatment of both chronic complications as well as the improvement of general health condition, comfort of life, and prevention. The aim of the study is to determine the influence of different types of meat: poultry (broiler breast muscle - *m. pectoralis*), pork (pork loin - *m. longissmus dorsi*) and beef (beef haunch – silverside - *m. semitendinosus*), prepared with three techniques of thermal treatment (cooking, baking, frying), served in a balanced meal in accordance with the recommendations for the diet with reduced quickly-absorbed carbohydrates, based on the recommendation of the Polish Diabetes Society from 2014, contained in "Clinical recommendations for the treatment of patients with diabetes" [Małecki, 2014] for postprandial glucose concentration in the blood of healthy people and people with type 2 diabetes. The research group consisted of people between 45 and 80 years of age, both healthy and those diagnosed with type 2 diabetes (insulin-independent) who use pharmacological treatment.

The research lasted 9 days, during which one product changed in the breakfast served – namely different types of meat prepared using different heat treatment techniques. Two hours after the meal, blood glucose levels were measured to determine the effect of meat consumption on postprandial glycemia levels. The basic chemical composition, amino acid profile, fatty acid profile, and cholesterol content in given types of meat subjected to various heat treatment techniques were determined.

The results of the research demonstrate that:

1. The type of meat and the applied heat treatment technique affect the postprandial glucose concentration in the blood of healthy people and people with type 2 diabetes,

however, much greater changes in glucose concentration were observed in people with type 2 diabetes.

2. Fat content in the analysed meat types prepared using three heat treatment techniques affects glucose levels in the blood of healthy people and people with type 2 diabetes. High fat content in the loin caused small changes in glucose concentration in the blood of healthy people (in the case of cooked and baked loin, these changes were even negative). In the case of people with type 2 diabetes, the changes in glucose concentration after consumption of pork loin were greater than in healthy people. Comparing to lean meat, meat containing more fat has a relatively lower glycemic index.

3. There was no correlation between the profile of amino acids in meat consumed and the blood glucose concentration in healthy people and people with type 2 diabetes.

4. There was no correlation between the profile of fatty acids in meat fat and glucose concentration in the blood of healthy people and those with type 2 diabetes. Only a higher CLA content in meat was accompanied by a smaller change in blood glucose concentration in people with type 2 diabetes, while a higher content of C20:3n-6 homo-gamma-linolenic acid in meat resulted in a larger change in blood glucose concentration in healthy people.

5. People with type 2 diabetes should be advised to eat boiled and baked pork loin or boiled beef leg and to avoid fried meat.

6. The degree of meat processing affects postprandial glucose levels in the blood of healthy people and people with type 2 diabetes.