

## **Abstract**

Obesity is a chronic disease caused by an imbalance between energy intake and expenditure. Important source of energy is the body fat, stored in adipose tissue cells in the form of triacylglycerols. The adipose tissue does not only store triacylglycerols but also functions as an endocrine organ with the ability to secrete cytokines and adipokines – the molecules, participating in series of the metabolic processes. The consequence of high-fat diet feeding is the growth of adipose cells and altered production of adipokines and cytokines. Majority of them have proinflammatory functions. Consequently inflammation of adipose tissue is increased as well as the activation of components of immune system, especially macrophages. The interplay between these and other aspects, including high free fatty acid plasma levels, also associated with metabolic disorders caused by obesity, is connected with the development of insulin resistance, that means state, when the tissues are nonsensitive to insulin.

**Key words:** obesity, adipokines, cytokines, immune system, adipose tissue, insulin resistance