Abstract

**Title:** Effect of protein (amino acid) ingestion on muscle protein synthesis following resistance exercise.

**Purpose:** The main objective of this thesis is to verify the three basic factors of the amount, type and timing of protein intake based on scientific studies and literature, to provide the most objective and accurate information and procedure on the methodology of nutrition and supplementation associated with the intake of protein / amino acids after strength training and how it all affects muscle synthesis.

**Summary:** The theoretical part of the thesis, discusses the factors affecting muscle protein synthesis, which stimulate growth and tissue regeneration, based on optimal stress response. Logically, it starts from general, i.e. the explanation of terms such as muscle tissue, the stimulation of muscle tissue and its manifestations and changes, nutrition factors and muscle stimulation, the mechanism of dietary factors (proteins/amino acids), specificity of protein/amino acids in their application to answer the three key issues, which are summarized in the section named scientific studies, which focuses on the effect of intake of protein/amino acids, in relationship to the efficiency of protein synthesis after strength training. The section summarizes, in detail, the questions of timing, amount, and type of consumed proteins/amino acids, and shows the relationship between these three factors and the optimization process of training and sports performance.

**Key Words:** protein supplementation, amino-acid supplementation, muscle protein synthesis, strength training, resistance training