

Abstract

This bachelor thesis monitors changes in body weight and body composition during training in professional athletes, three women and four men, from the Czech weightlifting team. The theoretical part describes components of the body composition, basic methods and calculations for its assessment. In addition, energy substrates used in weightlifting and sport nutrition basics, including suitable supplements for power athletes, are mentioned.

In the practical part, using the bioelectric impedance device, we evaluated the actual body composition and energy needs of individuals in a series of three defined measurements-before training, after training, and after meals.

The results of our qualitative research confirm that the energy needs of power athletes are far higher than predicted. We compared the minimum caloric requirement values obtained with the In Body 230 device measurement to those obtained using the Harris-Benedicts predictive equations (HBE), and pointed to significant deviations in basal metabolism calculations and inaccuracy of the results obtained with this equation. In most cases, with HBE, we have experienced undervalue in comparison to the In Body measurement. We have also confirmed the fact that the BMI is not suitable for the weight loss evaluation in weightlifters because of the excessive amount of muscle tissue in their bodies. The average BMI of all probands was 30.2 kg/m², indicating grade II obesity, but that does not reflect to the reality. Additionally, changes in the ratio of fat and non-fat mass after performing the control measurements were shown not to be correct. We have found that false weight loss is primarily due to a decrease in muscle glycogen reserves that have been exhausted during muscle work, and due to sweating.

The aim of the work is to determine the body composition of the top weightlifters, to record the changes after physical activity and food intake using the BIA measurement, and to point out the inaccuracies of the general formulas for the ideal body weight and basal metabolism determination.

Keywords: body composition, olympic weightlifting, sports nutrition, energetic metabolism, hydration, strength sport,