

SUMMARY

Quantitative determination of amount of fat in an organism is difficult and therefore for routine requirement and understanding in clinical and pediatric care the mass BMI index is most frequently used to define the level of obesity. In the diploma project we have focused our interest to BMI index, especially the 97th percentile, which is internationally recognized as the borderline percentile for obesity. We have attempted to verify the correctness of the agreed limit values of the BMI index. If BMI index provides unbiased information on obesity, or more precisely on the amount of fat in a body and if the agreed limit values of BMI index are defined properly, then the classification of proband in the percentile interval with BMI and

the monitored quantity should be identical. Good match was only found with the Rohrer index, which measures the same as BMI index. It was used for the comparison with other quantities relating to fat components. On the contrary other quantities have proven a bad match with the BMI index. Therefore we cannot consider the BMI index as unbiased criteria for obesity, or more precisely amount of fat, because value of the BMI index does not correspond to the amount of fat in probanda. It is therefore pointless to think about the correctness of the agreed limit of obesity above the 97th percentile, because no percentile of the BMI index can be determined as obesity limit.

The measured BMI index values are based on the mass of an individual and include all body components. However, with referential, obese and athletic population there are various impacts of the individual components. The impact between the fat and muscle components is balanced with the referential and athletic population, having a slight superiority of fat with the referential population and muscle with the athletes. Obese individuals have a clear dominance of fat impact and small impact of muscle and therefore a great difference between these components.