



**GEORGE EMIL PALADE UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE AND TECHNOLOGY FROM TÂRGU
MUREȘ - DOCTORAL STUDIES MEDICINE AND PHARMACY**

Summary of the doctoral thesis:

Nutritional, metabolic, hormonal and inflammatory status assessment in obese children

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Obesity in the pediatric population is a major global public health problem. This involves emotional and social consequences, as well as direct and indirect long-term costs. Cases of overweight and obesity have seen a constant growth rate, despite the efforts of the World Health Organization (WHO) to develop actions that reverse this upward trend.

Since the 1980s, the prevalence of obesity has tripled worldwide, in Europe one in three children (11 years old) being overweight or obese. The key factors in this epidemic are known to be changing eating behavior and reduced physical activity, along with a genetic predisposition to weight gain.

The originality of this thesis consists in the complex approach of a very topical matter, namely obesity among the pediatric population. Obesity is a multifactorial disease that requires multidisciplinary evaluation. Despite efforts to combat obesity, the incidence of this condition is constantly rising, with worrying levels being reached. Thus, for a complete approach we opted for careful corroboration of nutritional, metabolic and genetic data, which brings innovation to the study.

Diet is the most important factor associated with overweight and obesity, so we set out to conduct an extensive assessment of the nutritional status of the school-aged population. Determining the eating behavior for all food groups and evaluating the relationship between with other factors, such as sex, body mass index (BMI), background environment and average income, provides accurate information about the nutritional habits of children in Târgu Mureș. Understanding their eating behavior provides valuable data for strategies to promote healthy lifestyles and prevention interventions.

It is known that obesity leads to metabolic and cardiovascular complications, one of the mechanisms involved is based on adipose tissue as a source of pro-inflammatory cytokines. The role of these adipokines in the pediatric population is not totally elucidated and it is necessary to study these inflammatory markers. The evaluation of markers such as visfatin and RBP4 in school-aged children in



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Târgu Mureș brings valuable information, and the determination of their influence on the metabolic profile has a major impact in achieving an individualized management of pediatric patients with obesity.

Another innovative aspect of this research is the study in which it was evaluated the role of polymorphisms of NAMPT, RBP4 and STRA6 gene in the occurrence of obesity in children. Given that previous research has been conducted in the adult population and that there are no data available in the school-age population on the role of NAMPT polymorphisms rs2302559 and rs4730153, RBP4 rs3758539 and rs10882280 and of STRA6 rs974456 and rs351224, we can consider that our research is a unique study, which brings important information. Replicating our study in other geographical areas in Romania could be useful for a good understanding of the impact of SNP of visfatin, RBP4 and STRA6 on childhood obesity.

To our knowledge, this is the first study that analyzes the relationship between auxological, metabolic, inflammatory parameters and polymorphisms of the NAMPT, RBP4 and STRA6 genes in the Eastern European pediatric population.

In the present research we proposed a comprehensive approach to obesity, both from the clinical auxological and nutritional perspective, metabolic, inflammatory and genetic profile. Therefore, our study brings valuable information about the school-age population of Târgu Mureș, but in order to report our results to the population of Romania, additional studies are needed.