

**Project title:****EVALUATION OF LIVER AND OSTEO-METABOLIC COMPLICATIONS RELATED TO FRUCTOSE CONSUMPTION IN A COHORT OF OVERWEIGHT AND OBESE CHILDREN AND ADOLESCENTS****Acronym/working title:****EO2022****Principal Investigator**

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**Registration number of the Ethical approval**

Comitato Etico Interaziendale di Novara N° CE029/2023

**Project summary**

Obesity in children is constantly increasing, Italy is one of the European countries where this phenomenon is most widespread. Incorrect nutrition is certainly one of the factors influencing the development of this pathology. The eating habits of child are very far from those recommended for maintaining a good state of health throughout life. In fact, one in four children drinks sugary and carbonated drinks every day and consumes fruits and vegetables less than once a day. Moreover, according to the report of the United States Department of Agriculture, per capita consumption of fructose has increased progressively from 37 g/day to 49 g/day in the last 30 years.

The consumption of fructose is related to the development of secondary pathologies, including an increase in the incidence of fractures and osteoarthritis and a decrease in bone mineral density and the affixing of new bone tissue. Moreover, an increase in fructose in the diet seems to be responsible for the onset of various obesity-associated pathologies; first of all, NAFLD, which is increasing with obesity also in the pediatric population.

The aim of the study is to evaluate the effects of fructose intake in children and adolescents and the impact this may have on the development of liver complications and in relation to changes in bone metabolism. The secondary objective will be to characterize the microbial community (gut microbiota) of patients in relation to dietary habits, fructose intake and clinical parameters. Lastly, we will evaluate the socio-demographic and cultural determinants, and their differences between Northern and Southern Italy, in the children and adolescents considered in the study, and in their families. The results obtained will have as their goal the development of effective preventive communication to promote a healthier lifestyle and diet in the population.

**Duration of Study***Total duration of the study: 24 months**Study start: 01/10/2023**Study end: 30/10/2025***Total number of participants involved:**

100

**Samples collected:**

- ✓ Buffy coat
- ✓ Plasma EDTA
- ✓ Serum



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- ✓ Urine
- ✓ Feces