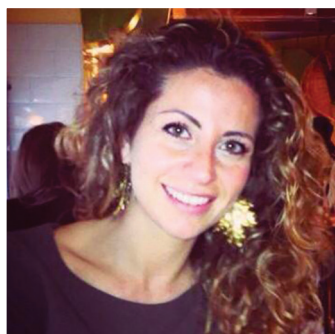


### FOOD AND OTHER DISEASES

#### CLINICAL MANAGEMENT OF GASTROINTESTINAL AND NUTRITIONAL DISORDERS AMONG CHILDREN WITH NEUROLOGICAL DISABILITIES



*Elena Scarpato*

#### Principal investigator

*Elena Scarpato*

#### Other components of the research group

*Massimo Martinelli*

*Maria Rosaria Serra*

*Caterina Strisciuglio*

*Erasmus Miele*

*Annamaria Staiano*

### Background

Neurological disability is frequently associated with gastrointestinal disorders and undernutrition. An adequate nutritional support promotes weight gain, improves linear growth, reduces the rate of infections, and globally enhances quality of life of the child and of the caregivers, also reducing the frequency of hospitalization. The assessment of nutritional status and following related interventions is one of the cornerstones in the clinical evaluation of children with neurological disability, since alterations of nutritional status may have a negative impact on overall development. The immune system is strongly influenced by nutritional status and metabolism. Acute-phase reactants, IL-1, IL-6 and TNF- $\alpha$  can influence the secretion of several hormones, such as leptin, that is mainly produced by the adipose tissue in proportion to the body fat mass. There is a huge body of evidence demonstrating interactions between leptin and macrophages, dendritic cells, neutrophils, NK cells, eosinophils/basophils, and T cells.

The aim of this research is to provide in-depth information on nutritional status of children with neurological disabilities (e.g. cerebral palsy, Rett syndrome), including body composition, micronutrients status, and to examine the effects of modifications of nutritional status on the immune system.

## Main achievements

The research group has always been very active in the characterization of gastrointestinal and nutritional problems in children affected by neurological disabilities with several publications on the management of gastroesophageal reflux disease and chronic constipation. Among the most important contributions, the group has first described the role of elemental diet in refractory esophagitis and the impact of malnutrition on the gross motor function in children with neurological disabilities.

## Future perspectives

Currently, a pilot study on the effect of variations in nutritional status on the immune response of children with neurological disability is ongoing. Preliminary data showed a reduced proliferation of the immune cells of malnourished children, associated with a global reduction of Treg cells, at baseline. After 3 and 6 months we recorded a trend of global improvement of the immune status, both in terms of proliferation capacity and regulation of the immune response. The final results of this project will certainly bring new knowledge on the strict correlation between malnutrition and immune development in this subset of patients.

## Publications

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## External collaborations

- Matarese G, Department of Molecular Medicine and Medical Biotechnologies, IEOS-CNR, University Federico II, Naples, Italy