Autism Spectrum Disorders (ASDs) and Anorexia Nervosa (AN) are two important neuropsychiatric disorders. ASDs are neurodevelopmental conditions, affecting approximately 1% of children in Italy, and characterized by persistent deficits in social communication and interaction, along with the presence of restrictive and repetitive behaviors. Anorexia Nervosa (AN) is characterized by a persistent restriction of energy intake and/or purging behavior, an intense fear of weight gain, as well as a disturbance in the self-perception of one’s body shape. To date, several studies have either addressed the prevalence of some AN features in ASD or vice versa or have analyzed the symptomatic overlap between these disorders. Overlapping features between AN and ASD include repetitive and restricted behavior, social withdrawal, and difficulties in understanding another’s mental state.

Importantly, both the two conditions share important neurobiological underpinnings. The main aim of our research activity is unrevealing the neurobiological underpinnings of ASD and AN by applying several techniques and methodologies, including imaging, neurophysiology, physiological signal analysis and sensory assessment. Notably, the use of non-invasive tools and/or wearable technologies allows evaluating also vulnerable and very young subjects.

In this seminar, in particular, we will present literature studies regarding the assessment of the autonomic nervous system and of the olfactory ability in the two conditions, including some research carried out by our research group.

Our findings suggest a dysregulation of the autonomic nervous system both in ASDs and AN, at baseline and during specific tasks, which could be related with social deficits in ASD or with metabolic dysfunction in AN. Moreover, we observed deficits in the olfactory perception within the two conditions with some evidence of a correlation between the ASDs and AN. The abnormalities retrieved probably deal with somewhat anomalies at a central nervous system level.

Overall, the results of the studies presented could improve the understanding of the neurobiological basis of ASDs and AN, therefore possibly supporting the clinicians in the diagnostic management as well as in the development of an effective treatment for these subjects. In the future, the approaches discussed could be
of evaluating pathophysiological processes dealing with the disorder progression, without causing noteworthy annoyance in the subjects evaluated.

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Aula Magna, Scuola Medica