

The clinic at the centre of research: a necessary dialogue to better understand autism and NDD across the lifecycle.

Episode 2: 17th AU Oct. 7-11, 2024

"Neuronal networks: when age and hormones get involved".

In 2024, autism is considered as one of the most complex neurodevelopmental disorders. It is responsible for difficulties that can vary from one person to another, depending not only on their genetic heritage, environment and associated somatic or developmental disorders, but also on their sex at birth, on the impact of autoimmunity and/or age. At the heart of this disorder lie alterations in the development and functioning of neural networks and their connections, the origins of which are plural but also dynamic and interconnected. The underlying physiological mechanisms often interact with each other, making it difficult to understand and predict the almost unique developmental trajectory of each child, adolescent and adult concerned.

Over the decades, research has focused on the various factors that might influence the development of these neural networks. Among these, age and hormones, alongside genetic and environmental factors, have emerged as key elements for better understanding of trajectories and the heterogeneity that still challenges personalized support projects and health policy priorities in 2024.

Thanks to the scientific innovations that are now making it possible to track high-risk children, advances in research have made it possible to better describe the particularities in neuronal connectivity that are observed from the earliest stages of development in autism. Work from international aging cohorts has also provided a better understanding of the impact of both age and brain plasticity. These suggest that abnormalities in the development of neuronal networks in autism are also under the influence of dynamic mechanisms that pursue their development at different stages of life, and open the way to new therapeutic possibilities, such as immunotherapy, or the promotion of lifelong learning through physical activity, and re-education in communication and social interaction.

In 2024, we won't be talking about autism without mentioning other neurodevelopmental disorders (NDD), which also lead to early, chronic, and long-lasting functional incapacity, with major repercussions for their families and society as a whole.

In 2024, researchers will also be confronted with the dual problem of the major missing links in research, and the need to ensure that research meets the real needs of the people concerned and their families. People with high support needs, particularly those with intellectual or cognitive disabilities or minimal verbal ability, are often excluded from

research into ASD or NDD in general. They are the "great missing ones" in research. The exclusion of people with intellectual development disorders, behavioural problems or epilepsy can be achieved by formal means - inclusion and exclusion criteria - or be the collateral result of certain methodological features of the study. Either way, it limits our ability to generalize results to all people with ASD and leads to a disparity in research beneficiaries. ARAPI's structural commitment since its creation in 1984, in line with the priorities set out in the new national strategy for ASD (2023-2027), is to encourage dialogue between clinicians and researchers, and to develop and structure participative research at all stages and for all those involved, for the benefit of families and people concerned.

With this in mind, the inaugural conference, the "Meet the Expert" session and the associations' round table will address the issue of the "great forgotten ones" of research, and a workshop will be dedicated to the structuring of participative research in France.

The aim of this Autumn University is to take stock of the various factors involved in the pathophysiology of ASD, including gender, hormones and age, and the trajectories of compensation. Twelve oral presentations by national and international researchers, experts in their fields, will discuss recent scientific results. The aim is to bring together a wide audience of researchers in various disciplines (neurosciences, biology, genetics, pharmacology, psychology, etc.), clinicians (doctors, psychiatrists, paediatricians, psychologists, speech therapists, psychomotor therapists, occupational therapists), teachers, educators, managers of medical and social services and establishments, doctoral students, parents, and association leaders.

With the same spirit as at the 16th AU, the 2024 event will be an opportunity to share the results and enthusiasm of numerous young French-speaking researchers in two dedicated sessions, one of oral communications and one of posters, which will be discussed with expert senior researchers. They will promote the updating of knowledge in the field of autism, bring together basic and applied research, and encourage national and international collaborative and participative study programs.

Finally, this Autumn University 2024 will be an opportunity to celebrate together the 40th anniversary of our association, ARAPI, which, thanks to the commitment of all its members: professionals, parents, and people with autism, continues to promote and disseminate the results of research into autism and NDD in France and Europe.