

Gluten and Autism: A Common Leak?

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In 1825, the French Jean Anthelme Brillat-Savarin wrote, in *Physiologie du Goût, ou Méditations de Gastronomie Transcendante: «Tell me what you eat and I will tell you what you are»* [Dis-moi ce que tu manges, je te dirai ce que tu es.] [1].

There is mounting evidence unmasking the origins of the peculiar association between celiac disease (CD) and autism spectrum disorders (ASD), in adult as well as in pediatric populations [2].

Actually, we should highlight the shared pathophysiological role of the digestive microbiota and the intestinal hyperpermeability in these two conditions.

In fact, gastrointestinal disorders are very common in the autistic population, probably via the so-called gut-brain axis through an unbalanced gastrointestinal microbiota (i.e. intestinal dysbiosis) and an increased intestinal permeability (i.e. "leaky gut"); these mechanisms being also described in celiac patients [3,4].

Moreover, ASD patients often exhibit a dramatic increase of self-antibody response to tissue transglutaminase-2, the key harmful enzyme of the pathogenic cascade in CD [5].

Finally, as a cherry on the cake, a recent French study looked for the polymorphisms of the Human Leukocyte Antigens (HLA) in autistic patients, as HLA is the most important genetic background predisposing to CD. Unsurprisingly, the peculiar class II HLA haplotype HLA-DRB1 *11-DQB1*07 (strongly associated to CD) was more prevalent in the group of ASD patients, versus healthy controls ($p = 0.001$) [6].

Thus, clinical, pathophysiological and genetic findings do confirm the tight ties of gluten intolerance with autism.

We think that at least a subtype of autism could be considered as a gluten-related disorder: in genetically predisposed patients, a specific diet (i.e. gluten free diet) could be offered to ASD patients; it would preserve the gut permeability and boost a rich, balanced microbiota, two pathways largely involved in autism and in celiac disease.

Whatever we do, we are what we eat!

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Conflict of Interest

The authors have nothing to disclose.

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