

Insights on Gut Microbiome in Autism Spectrum Disorders

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INTRODUCTION

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder marked by a collection of dysfunctional social behaviours. Many studies have found a connection between ASD and the intestinal microbiome as the prevalence of ASD rises [1]. Immune dysregulation and gastrointestinal issues are common comorbidities of ASD, which is diagnosed based on the occurrence and severity of impaired social contact and repetitive conduct. Changes in the gut microbiota can modulate gastrointestinal physiology, immune function, and even actions, according to recent studies. The discovery of links between specific bacteria from the gut microbiota and ASD phenotypes raises the important question of whether microbial dysbiosis plays a role in the production or presentation of ASD symptoms [2].

As compared to other neurodevelopmental conditions, the history of co-occurrence of psychiatric comorbidities in autism is the most intriguing. They have a high comorbidity rate, with seizures, mental disease, and gastrointestinal problems being the most common. Via involvement in physiological homeostasis, immunological growth, glutathione metabolism, amino acid metabolism, and other processes, the gut microbiota is thought to play a pivotal role in human health and disease, which may explain the role of the gut-brain axis in autism. Gastrointestinal issues seen in the majority of autism cases mean that it is not only a psychological condition, as many people believe, but also has a physiological basis, and that treating the gastrointestinal issues could help alleviate the symptoms by bringing about the much-needed overall change in the affected people. In autistic children, a gut condition similar to Crohn's disease is sometimes documented, as is an exceedingly painful gastrointestinal disease known as autistic enterocolitis. According to the old adage, "fix your stomach, fix

your brain," this disrupted state, which is thought to be caused by dysbiosis or microbial imbalance, may disrupt the coordination of the microbiota-gut-brain axis, which is critical for human mental health [3].

Several studies have found variations in the microbial makeup of the gut between the general population and ASD patients. However, the majority of the studies had a limited number of participants, and variables such as diet were not well regulated. As a result, the microbial composition pattern has yet to be established as an ASD endophenotype [4].

Factors Affecting Gut Microbiota

Antibiotic use was specifically investigated due to the drastic effect of antibiotics on the gut microbiota. More than half of the studies removed participants who said they had taken antibiotics before the sample was taken. The vast majority of research took into account and gathered data on GI symptoms. In the vast majority of cases, parents or caregivers were asked to fill out questionnaires. Only a few studies used a standardised assessment, such as the ROME III or IV criteria, the 6-item GI Severity Index, or the CHARGE GI background survey. Diet is a powerful driver of the human microbiota, and dietary restriction is a fundamental component of ASD during life. As a result, strong dietary data is critical to comprehending microbial diversity in ASD [2].

Finally, Autism Spectrum Disorder (ASD) is an increasingly common disease that affects millions of families around the world. The results of previous studies have been inconsistent; however, this can be explained in part by heterogeneous populations and methods. More objective clinical evaluation, accuracy of case ascertainment, and explanation are needed in future studies of the gut microbiota in autism. Furthermore, information about antibiotic use, diet, and GI symptoms are crucial to understanding the connection between autism and a

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microbial imbalance in the gut. The importance of GI symptoms in ASD, the seemingly distinct gut microbiome of these children, and the mechanistic plausibility of bacterial products causing autism are all compelling reasons to believe that the gut microbiota is involved in autism.

REFERENCES

1. Wu T, Wang H, Lu W, Zhai Q, Zhang Q, Yuan W, et al. Potential of gut microbiome for detection of autism spectrum disorder. *Microb Pathog.* 2020;149:104568.
2. Vuong HE, Hsiao EY. Emerging roles for the gut microbiome in autism spectrum disorder. *Biol Psychiatry.* 2017;81(5):411-23.
3. Pulikkan J, Mazumder A, Grace T. Role of the gut microbiome in autism spectrum disorders. 2019:253-69.
4. Oh D, Cheon KA. Alteration of gut microbiota in autism spectrum disorder: an overview. *J Korean Acad Child Adolesc Psychiatry.* 2020;31(3):131.