

## Health-promoting Effects of Goat's Milk in Autism Spectrum Disorders

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### Abstract

Autism spectrum disorders (ASDs) are multifactorial neurodevelopmental conditions that characterized by impaired social interactions as well as repetitive and restricted behaviours. A majority of the evidence indicates that nutritional intervention helps diminish the symptoms of ASDs. However, despite an increasing amount of evidence in the literature regarding the effectiveness of dietary interventions, no consensus exists regarding optimal nutritional therapy. Goat Milk has emerged as a candidate for health-promoting benefits due to its classification as a functional food. Moreover, Goat Milk proteins have better digestibility and hypoallergic properties with a wide range of antihypertensive, antioxidant, and cholesterol-lowering effects. Therefore, based on previous studies which showed that the lower level of casein, and the much higher level of EPA and DHA in Goat Milk compared to Cow Milk which could help to reduce autistic features. Our study aimed to investigate the possible positive effect of Goat's milk (GM) compared to Cow's milk (CM) on ASD autistic features in a valproic acid (VPA; 600 mg/kg) induced white albino rat model of autism. All tests were conducted on rats that were divided into four groups (n=15/group): control with goat milk treatment, control with cow milk treatment, autistic with goat milk treatment, and autistic with cow milk treatment. After 15 days of intervention, selected biomarkers were measured, such as glutathione (GSH), thiobarbituric acid reactive substance (TBARS), interleukin-6 (IL-6), neurotransmitter dopamine (DA), serotonin (5- hydroxytryptamine, 5-HT), and glutamate (GLU) in blood serum and brain homogenates. Blood serum and brain samples showed a positive increase in TBARS in the VPA- rats model fed GM but brain and serum serotonin levels were lower in both VPA-GM and VPA-CM groups. Dopamine in serum was also lower in the VPA-CM group than in the VPA- GM group. IL-6 levels were slightly lower in the VPA-GM than VPA-CM. In conclusion, this study improves on the knowledge regarding the usefulness of feeding GM, due to its potential effect in reducing oxidative stress, which is usually associated with severity of ASD.