

What's the Evidence?

Probiotics for children with Autistic Spectrum Disorder

Key findings

- Probiotics are living 'micro-organisms' that do not cause disease. They can be used as a food ingredient or taken as a supplement.
- No studies could be found that demonstrate probiotics reduce behavioural symptoms of autism.
- Until an evidence-base is established and there is more understanding about the effects, we would caution against long-term use of probiotics.

Published November 2016

What were we asked?

We were asked whether probiotics are effective for children with Autistic Spectrum Disorder.

What did we find?

What are probiotics?

Probiotics are living 'micro-organisms' that do not cause disease (they are "friendly bacteria"). They can be used as a food ingredient or taken as a supplement. Probiotic products tend to include bacteria such as lactobacilli, lactococci, bifidobacteria, or, yeasts such as *saccharomyces boulardii*.

Do probiotics have positive benefits for children with ASD?

It has been proposed that using probiotic bacteria may improve behavioural symptoms such as irritability, aggression

and sleep disturbances in children with autistic spectrum disorders (ASD).¹ However, this is based on a theory about gastrointestinal (GI) dysfunction symptoms. It is not a proven or accepted theory, and there is currently no scientific evidence to back this claim. No studies could be found that demonstrate probiotics reduce behavioural symptoms of autism.

This does not mean that probiotics do not have health effects for children with autism, but that research hasn't shown it yet. Advances in technology mean that research into the microbes that live in our gut and health are now more viable. Indeed, Autism Speaks have funded two studies that showed probiotics reduced intestinal inflammation and autism-like behaviours—however, both these studies involved mice rather than humans.^{2,3}

What do we think?

To understand whether there are any benefits from using probiotics for children with autism and, then to find out which type of bacteria and what dose works for which individual, large controlled trials would be required.

Until an evidence-base is established and there is more understanding about the effects, we would caution against long-term use of probiotics.

Signposts to other information

Both of the following organisations provide further information about the evidence available for interventions for autism, and have specific information about probiotics.

Research Autism:

www.researchautism.net/autism_treatments_therapies_intervention.ikml?ra=53

Autism Speaks:

www.autismspeaks.org/blog/2013/01/11/guidance-probiotics

We would like to hear your feedback on this summary – please email us at penclu@exeter.ac.uk if you have any comments or questions.

References

1. Critchfield, J.W., et al. (2011). The Potential Role of Probiotics in the Management of Childhood Autism Spectrum Disorders. *Gastroenterology Research and Practice*. Article ID: 161358.
2. Hsiao, E.Y., et al. (2013). Microbiota Modulate Behavioral and Physiological Abnormalities Associated with Neurodevelopmental Disorders. *Cell* 155: 1451-1463.
3. Buffington, S.A. et al. (2016) Microbial Reconstitution Reverses Maternal Diet-Induced Social and Synaptic Deficits in Offspring. *Cell*. 165(7): 1762-75.

Note: the views expressed here are those of the Peninsula Cerebra Research Unit (PenCRU) at the University of Exeter Medical School and do not represent the views of the Cerebra charity, or any other parties mentioned. We strongly recommend seeking medical advice before undertaking any treatments/therapies not prescribed within the NHS.