

Autism Spectrum Disorders (ASDs)

- developmental disorders characterized by impairments in social interaction; varying degrees of verbal and nonverbal communication deficits; and restricted, repetitive, and stereotyped patterns of behavior and interests
- Prevalence: 1 every 150 children in the US (10-fold increase in the past 20 years)
- a variety of gastrointestinal dysfunctions and associated symptoms have been reported in ASD children

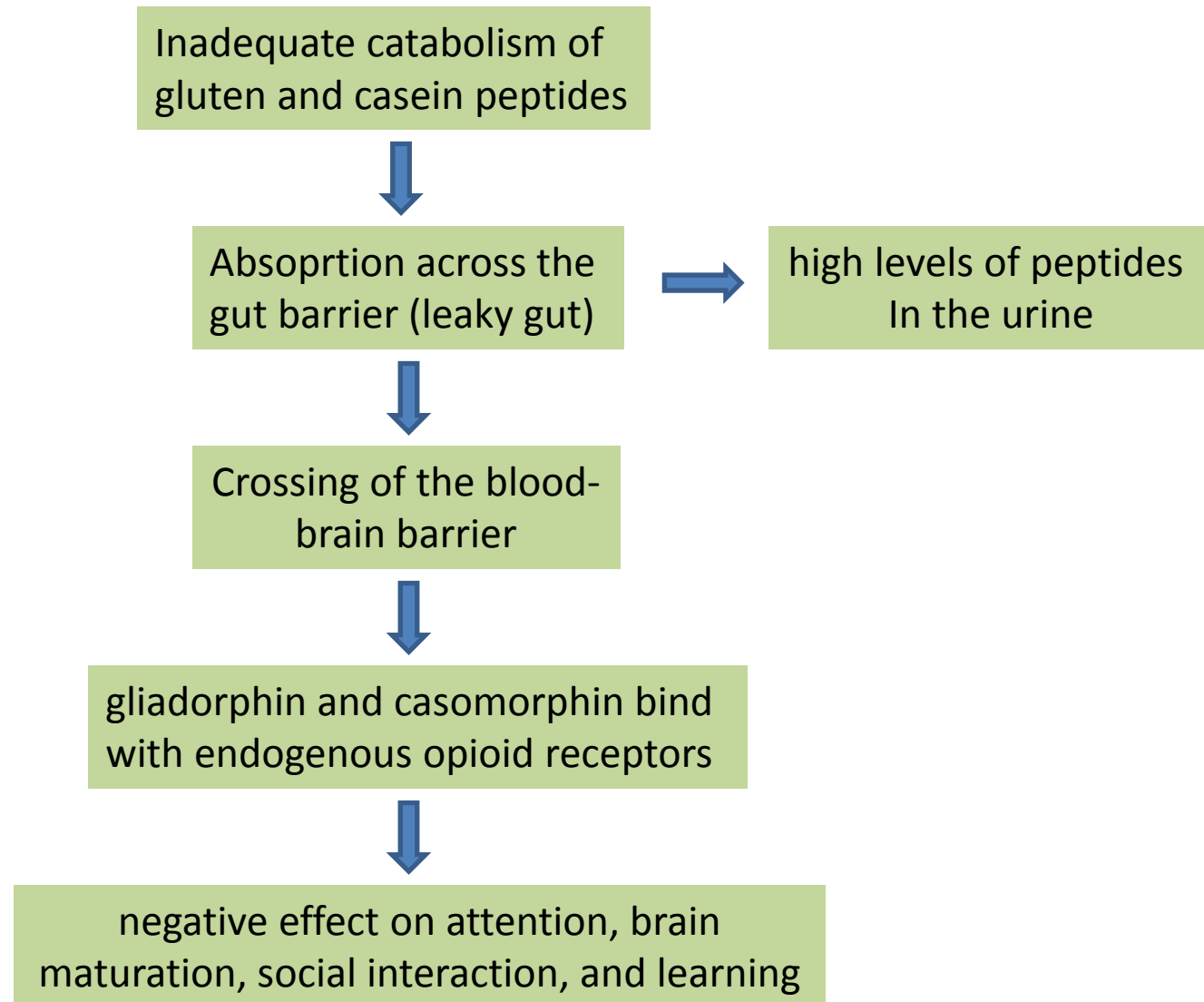
ASDs

- No clear etiology or known cure
- No relationship with celiac disease
- Treatment usually consists of a comprehensive, intense program of educational intervention, developmental therapies, and behavioral treatment.
- There is evidence of widespread use by parents of complementary and alternative therapies (CAM) for children with autism

ASD and the opioid hypothesis

- Autism results from excessive brain opioid activity during the neonatal period
- This leads to an inhibition of social motivation, yielding aloofness and autistic isolation.
- This hypothesis is supported by the arguments that (a) animals exhibit similar behavior after injections of exogenous opioids (decreased vocalization and increased aloofness) (b) Direct biochemical evidence of abnormal peripheral endogenous opioids in autistic patients, and (c) case reports of the therapeutic effects of naltrexone (a long-lasting opioid receptor blocking agent) in patients

The Reichelt hypothesis on gut-to-brain connection in ASD



The GFCFD in ASDs: Cochrane Reviews 2004 and 2008

- From 1965 to 2007, 61 studies were identified
- Only 3 were considered to be of high enough quality to be included in the analysis
- 2 small trials: the first with 10 participants in each arm and the second with 15 participants total
- In the first study, GFCFD was reported to reduce the autistic traits of “social isolation” and “bizarre behavior” at 12 months
- In the second study, there was no significant difference in outcome measures between the diet group and the control group with regard to cognitive skills at 12 months, motor ability at 12 months, communication and language sampling at week 6
- These metaanalyses concluded that “this is an important area of investigation and large scale, good quality randomized control trials are needed»

Evaluation, Diagnosis, and Treatment of Gastrointestinal Disorders in Individuals With ASDs: A Consensus Report

- **Statement 11**

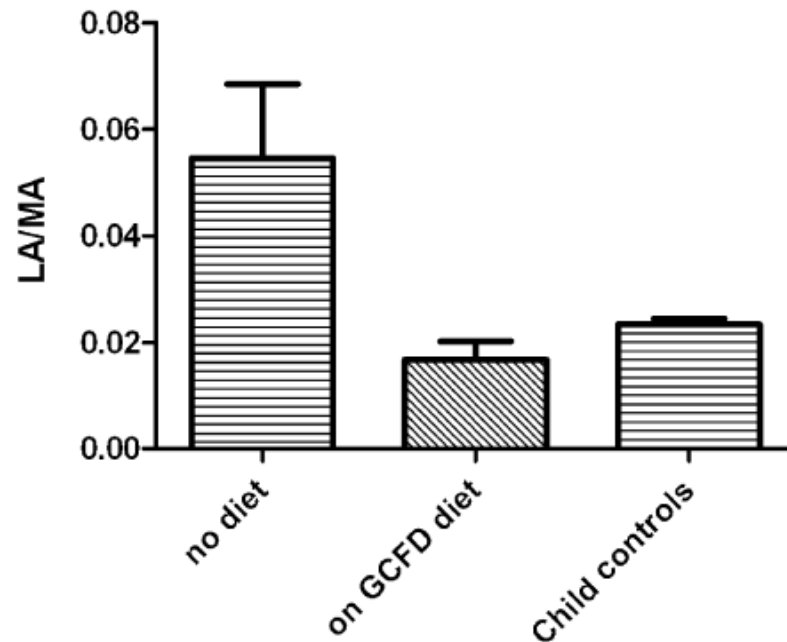
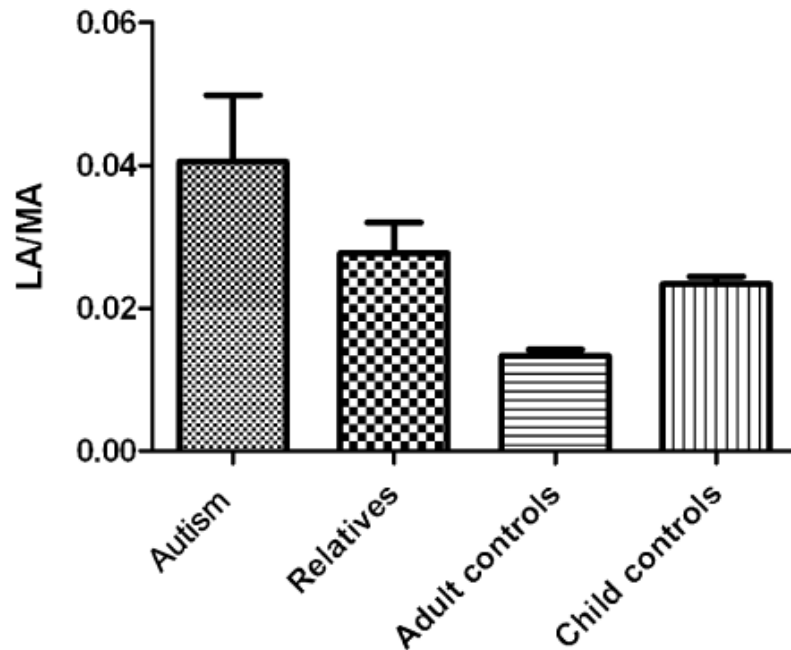
Anecdotal reports have suggested that there may be a subgroup of individuals with ASDs who respond to dietary intervention. Additional data are needed before pediatricians and other professionals can recommend specific dietary modifications.

Statement 12

Available research data do not support the use of a casein-free diet, a gluten-free diet, or combined glutenfree, casein-free (GFCF) diet as a primary treatment for individuals with ASDs.

Alterations of the Intestinal Barrier in Patients With Autism Spectrum Disorders and in Their First-degree Relatives

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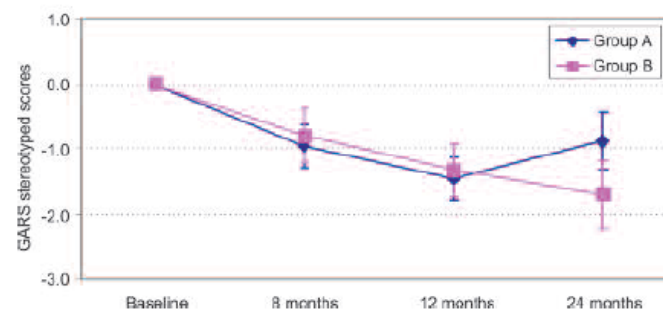
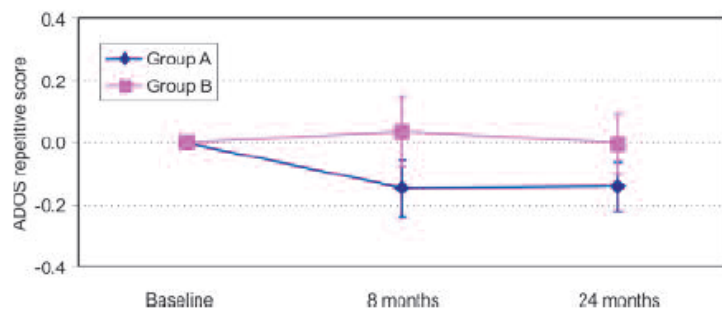
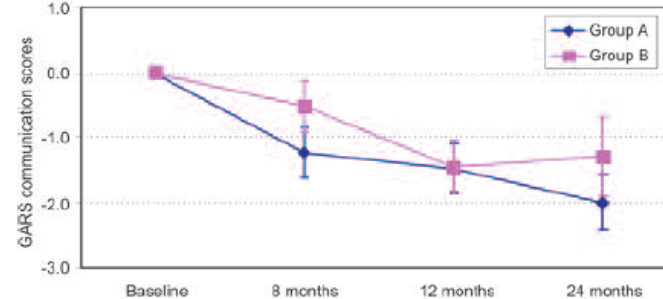
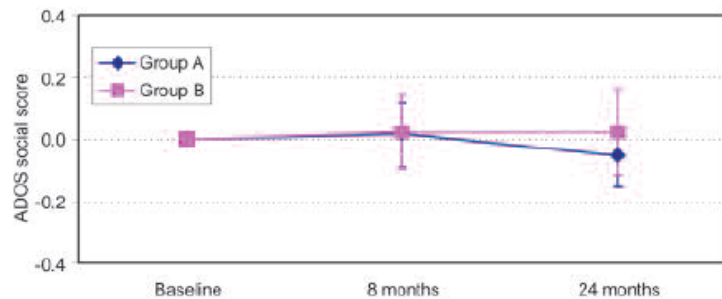
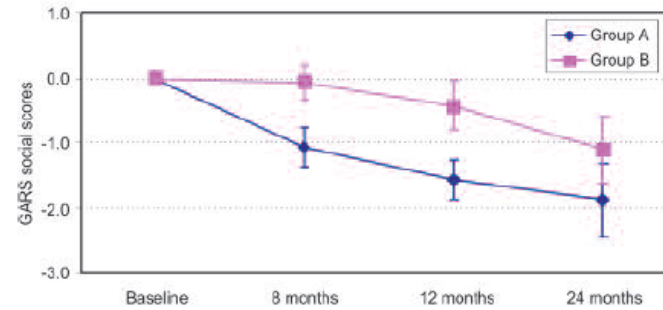
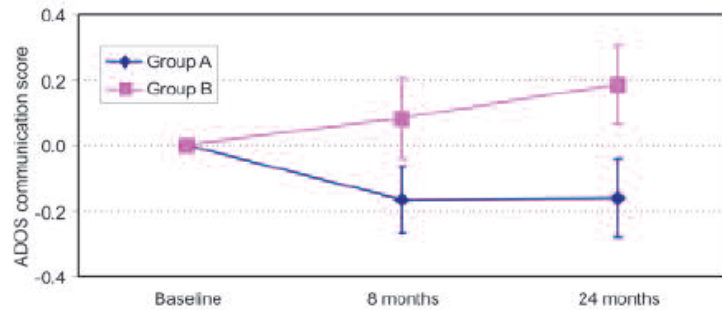


The ScanBrit randomised, controlled, single-blind study of a gluten- and casein-free dietary intervention for children with autism spectrum disorders

Paul Whiteley¹, Demetrious Haracopos², Ann-Mari Knivsberg³, Karl Ludvig Reichelt⁴, Sarah Parlar², Judith Jacobsen⁵, Anders Seim⁶, Lennart Pedersen², Maja Schondel², Paul Shattock¹

There is increasing interest in the use of gluten- and casein-free diets for children with autism spectrum disorders (ASDs). We report results from a two-stage, 24-month, randomised, controlled trial incorporating an adaptive 'catch-up' design and interim analysis. Stage 1 of the trial saw 72 Danish children (aged 4 years to 10 years 11 months) assigned to diet (A) or non-diet (B) groups by stratified randomisation. Autism Diagnostic Observation Schedule (ADOS) and the Gilliam Autism Rating Scale (GARS) were used to assess core autism behaviours, Vineland Adaptive Behaviour Scales (VABS) to ascertain developmental level, and Attention-Deficit Hyperactivity Disorder – IV scale (ADHD-IV) to determine inattention and hyperactivity. Participants were tested at baseline, 8, and 12 months. Based on per protocol repeated measures analysis, data for 26 diet children and 29 controls were available at 12 months. At this point, there was a significant improvement to mean diet group scores (time*treatment interaction) on sub-domains of ADOS, GARS and ADHD-IV measures. Surpassing of predefined statistical thresholds as evidence of improvement in group A at 12 months sanctioned the re-assignment of group B participants to active dietary treatment. Stage 2 data for 18 group A and 17 group B participants were available at 24 months. Multiple scenario analysis based on inter- and intra-group comparisons showed some evidence of sustained clinical group improvements although possibly indicative of a plateau effect for intervention. Our results suggest that dietary intervention may positively affect developmental outcome for some children diagnosed with ASD. In the absence of a placebo condition to the current investigation, we are, however, unable to disqualify potential effects derived from intervention outside of dietary changes. Further studies are required to ascertain potential best- and non-responders to intervention. The study was registered with ClinicalTrials.gov, number NCT00614198.

Autism Diagnostic Observation Schedule (ADOS) per grouping across the trial period



ADSs and the gluten connection

- ADS is an heterogenic group of disorders that is related to multiple genetic and environmental factors
- No relationship between ADSs and celiac disease!
- Gastrointestinal dysfunctions and associated symptoms are common in ADS children
- Evidences of a leaky gut and therapeutic effect of the GFCFD in a sub-group of children with ADSs are available, but further data are needed
- Double-blind, placebo-controlled studies are required to evaluate the effect of the GFCFD treatment in ADSs children

MMR vaccine > ileo-colon NLH > autism ?
Be aware of the Wakefield case

COMMENTARIES

**The Vaccine-Autism Connection: A Public Health Crisis Caused
by Unethical Medical Practices and Fraudulent Science**

Dennis K Flaherty

Ann Pharmacother 2011

**Thank you
for
attention**



"It may look that way... But actually, I'm an atheist."