Gastrointestinal Issues in ASD Children
What is the research telling us?

Until recently, autism, along with other developmental disabilities, was regarded as a central nervous system disease. Medical professionals have by enlarge ignored the various other disorders coexisting with autism, such as dysfunction of the gastrointestinal and immune systems. What is very apparent, when you look at the scientific literature, is the very strong evidence that children with autistic spectrum disorder (ASD) tend to suffer from a wide variety of gastrointestinal (GI) symptoms and abnormal pathologies. Sometimes these may be severe GI problems that are neglected and not considered in routine ASD evaluations. The rate of GI symptoms is much higher than children with either typical development or other developmental disorders. The most frequent complaints are chronic constipation and/or diarrhoea, flatulence, and abdominal discomfort/pain and distension.

Many ASD children exhibit abnormal GI symptoms, pathology, microbiology and immune status. All these important areas of gut function are being researched and published. However, how many medical specialists are aware of what is being discovered, let alone what they should be assessing more seriously with the view to treatment?

### Gastrointestinal Symptoms
- Constipation
- Diarrhoea
- Alternating constipation and diarrhoea
- Bloating
- Pressure on abdomen or “pain posturing”
- Sleep disturbances
- Behavioural outbursts

### Gastrointestinal Pathology
- Eosinophilic esophagitis
- Subtle diffuse inflammation
- Erosion of the gastrointestinal lining
- Ileo-colic lymphoid nodular hyperplasia
- Abnormal intestinal permeability

### Gastrointestinal Microbiology
- Changes in the gut microbiome
- Certain microbial clusters are over represented in ASD including:
  - Clostridia which are toxin producers
  - Parasites
  - Yeasts
  - Viruses

A study published in 2012 in the *Journal of Abnormal Child Psychology* linked GI issues with behaviour, showing that ASD children who have GI issues often experience extreme anxiety as well as regressions in behaviour and communication skills. What’s worse, the side effects of the psychotropic drugs that are prescribed to many autistic children may be intensifying the digestive issues.

A more recent study (2014) in *Pediatrics* concludes that:

“At a minimum, ............ GI dysfunction in ASD warrants the adoption of a lower referral threshold by practitioners for evaluation and treatment by a gastroenterologist if an underlying problem is suspected. Children with ASD often present with limited verbal communication, and as a result, their symptom presentation may be unusual compared with that of their peers. For example, the emergence or exacerbation of problem behaviors, such as aggression, self-injury, sleep disturbance, or irritability, without clear environmental influence (ie, antecedents or consequences), may be the only indication of an underlying GI problem.”


Changing the way we think about treating autism.

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Helping Children Achieve Their Full Potential

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Many ASD children adopt a characteristic posture designed to put pressure on the lower abdomen, which is an adaptive behaviour designed to reduce pain. From a clinical perspective, it is valuable to consider intestinal inflammation in the differential diagnosis of children with autism who present with constipation, diarrhoea, or alternating diarrhoea and constipation, sleep disturbances, behavioural outbursts, or unusual posturing. Clinicians treating autism must be ever-vigilant for the presence of organic pain in children who have limited ability to communicate their agony. Gastrointestinal status has been positively correlated with severity of autism in children. Clinicians who evaluate children with autism should consider self-abusive behaviour as a possible indicator of pain, difficulty toilet training as potential gut pathology, and trouble sleeping as a sign of gastrointestinal reflux or abdominal pain until proven otherwise.

The positive impact of treatments aimed at the GI problems in ASD children is widely reported by parents.

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It would help substantially to identify specific subgroups of ASD children who may better benefit from GI interventions. Many of these approaches involve life-long interventions such as implementation of a gluten-free diet and or casein free diet. Better identification of the individuals likely to respond to particular treatments can reduce the costs and burden on families. It has been suggested that by using clinical phenotypes or through the identification and use of specific biomarkers (see Table 2) sub-groups of ASD children can be identified so that GI treatments can be more effectively targeted. These biomarkers as suggested from the research paper listed are not the only ones that can be considered, others like dietary peptides, lactoferrin, secretory IgA and others may also be useful. Which tests to choose depends on the clinical experience of the health professional and the clinical symptoms displayed by the ASD child.

What does our gastrointestinal microbiome have to do with it?

Studies of faecal DNA extracts have found certain microbial clusters overrepresented in children with ASD and gastrointestinal complaints compared with children with similar GI complaints but typical neurobehavioral development. Certain Clostridium clusters have been shown to produce a neurotoxin that can affect behaviour. Also the antibiotic vancomycin has been shown to be effective in reducing autistic symptoms and is also effective against Clostridia and Gram negative organisms. PANDAS (pediatric autoimmune neuropsychiatric disorders associated with Streptococcal infection) manifests with symptoms often shared with autism, such as cognitive inflexibility, obsessive and compulsive behaviours and vocal and/or postural tics. Changes in the gut microbiome may help explain anecdotal reports of improvement in behavioural functioning in response to dietary changes if such changes serve a probiotic function and improve symptoms of irritable bowel syndrome (eg, bloating, abdominal pain, flatulence) among certain children with ASD. Such reports help propagate interest in the use of dietary manipulation (eg, gluten and casein-free diets) as an ASD-focused treatment. Dietary interventions, including the gluten- and casein-free diets, nutritional supplements, enzymes, and antimicrobial agents, have not been substantiated by empirical investigation. However, parents faced with no time to lose as their children are growing and developing, are willing to push the boundaries and trial treatments that anecdotally have shown benefit in other children.
The Take Home Message

As a parent, if you suspect that your child may have gastrointestinal problems or shows any of the above symptoms it would be highly advisable to have your child professionally assessed. If your paediatrician or other healthcare professional dismisses your concerns, find one that will take your concerns about your child seriously.

As a health professional, do not dismiss treatable underlying conditions (as listed in the tables above) as being “autistic traits”. Recent research is confirming that there are underlying medical issues that may be making the child miserable. Referral to someone that specialises in assessing and treating these issues will result in a much calmer and happier child who will be more receptive to and make greater gains from any ongoing therapies.
Selected References


