Autism and Gastrointestinal Problems (Part 2)
Science Brief 3


Research Design
(What did the researchers do?)

This is a “review” article which is an important part of the research process. When a lot of articles have been published about a topic, or when articles don’t agree on the results, experts will do a “review of the literature.” Then they can figure out what we really know, why there is confusion, and what needs to be studied more. Twenty-eight (28) experts in autism and/or diagnosing and treating GI problems reviewed many scientific articles on GI problems and treatments for people with autism. The experts were medical doctors, other health care professionals, and researchers. They were chosen because they had special training in GI problems, child development and behavior, neurology, pain in children, child psychiatry, allergy, immunology, genetics, and molecular/cell biology. They met for two days in Boston, Massachusetts, in 2008, to talk about what they found. They wanted to see if they could agree on what we know about GI problems in children with autism and how to treat them.

Study Purpose
(What questions are the researchers trying to answer?)

Since 1995, there have been many articles published on (1) gastrointestinal (GI) problems in people with Autism Spectrum Disorders (ASD), (2) what might cause these problems, (3) and how diet might be useful in treating GI problems and possibly autism.

However, not all of the articles published report the same findings so there is confusion about what we really know about this topic.

This article describes the work of a large group of scientists and experts worldwide who reviewed many scientific articles on GI and autism. They met for two days and tried to answer 3 questions: (1) Do we have good research on the GI problems people with autism have? (2) What is the best way to evaluate GI problems in people with Autism? (3) Do we have good research on whether special diets and other treatments can help with autism? This is Part 2 of Science Brief 3: Autism and Gastrointestinal Problems.

Results
(pgs. 2-4)
Data and information collected in the study.

What does this mean for my child and my family?
(pg. 4-5)

Glossary
(pg. 5)
IV. Nutritional Problems and People with ASD (Statements 9-12)

The expert panel stated that pediatricians and other professionals should look for potential nutrition problems in patients with ASD. All people must get certain nutrients in their diets. Our bodies need these nutrients to live and grow. Examples of nutrients are vitamins, minerals, and proteins. You cannot see nutrients; they are in the foods we eat. If a person does not have a “balanced” diet, they may lack some important nutrients. Professionals call this “nutritional deficiency.” Nutritional deficiencies have been reported in people with ASD. This is because children with ASD often eat the same foods or are on special diets that may not have all the nutrients that people need to stay healthy. One study compared children who did not have autism to 36 children with autism and found both boys and girls with autism did not eat food with as much protein as children their same age without ASD. Other studies found children with ASD did not get enough calcium, vitamin D, and iron in their diets. Studies show that children who do not get enough of these nutrients may have weak bones and sleep problems.

The expert panel also stated that children with ASD are more likely to be overweight. “Overweight” is a word which means someone weighs more than 85% of people their age and height. They talked about an article that reviewed the medical charts of children ages 12-19 years old with ASD from 1999 to 2002. In this study, 50% of teenagers with ASD were overweight. Only 16% of children the same age who did not have ASD were overweight.

See Figure 1.

Because children with ASD became overweight as they got older, the expert panel stated that pediatricians should regularly monitor physical growth of children with ASD as part of their routine medical care. This would include measuring weight and height and plotting weight and height on a growth chart. Growth charts help the doctors know how the weight and height of a child with ASD compares to children without autism.
It is especially important to plot the child’s weight for height. This tells us if the child is underweight (the blue line), overweight (orange line), or just right (black line). See Figure 2. Being underweight and overweight may be a sign of poor diet. It may also be a sign of a GI or other problem. Any child who has a growth problem should see their doctor regularly and be evaluated by a Registered Dietitian (RD) working with the child’s doctor. The RD should understand the nutrition needs, eating patterns and behavioral challenges of people with ASD.

Special diets for people with ASD to treat GI or nutrition problems. The expert panel stated that there might be subgroups of people with ASD who need changes in their diet. These special diets often remove some types of food from the child’s diet because there are worries that the child may not digest the food well or may be allergic to the food. Three types of “special” diets are discussed: (1) Gluten-free (GF)—“Gluten” is a type of protein that is found in grains, such as wheat, rye, barley. Children on a “gluten free” diet are not allowed to eat most breads, rolls or pastries made from these grains. (2) Casein-Free—“Casein” is a protein that is found in dairy foods, such as milk, cheese, ice cream or yogurt. Children on a “casein free” diet have to avoid foods with milk or milk products. (3) “Lactose” is the sugar in milk. The body must make an enzyme called “lactase” to digest the sugar in milk. Some people who drink milk don’t make enough lactase and the lactose isn’t digested. These people have nausea, cramping, bloating, diarrhea, and gas when they drink milk or eat milk products. Their doctor may put them on a “lactose free” diet. The expert panel agreed that diet changes should be made by the patient’s doctor based on the symptoms they are experiencing.
Not enough evidence on special diets to treat Autism. There have been some reports that special diets might be effective for treating symptoms of Autism. These reports have said that children with autism on special diets communicate better or are more social after being on these special diets. However, the expert panel stated that we do not have good research on whether this is true. They mentioned that only one good research study was conducted that studied special diets given to 15 children with ASD. In the study children with ASD were given a special diet or a regular diet. Their parents and the researchers did not know what diet each child was given. Both parents and the researchers filled out a form describing the child’s communication and social skills before and after the 12-week diet experiment. This study found there was no difference in communication and social skills of the children who were given the special diet and children who ate a regular diet. They found that 9 of the 15 parents still wanted to continue the special diet after they heard the study results. The panel agreed that right now we do not have enough good research on whether special diets actually improve the communication and social skills of children with autism. If a child with autism has GI problems, which might improve with diet changes, it is important that the child’s doctor work with the family to make diet changes.

V. Allergies and Gastrointestinal Problems (Statements 13-16)
The expert panel stated that 25% - 65% of children in westernized countries have some kind of allergy. In the general population about 10% of babies and young children have food allergies. We do not have good data on how many children with autism have allergies. A person who has a food allergy may have an unpleasant reaction to something they eat, such as nausea, vomiting, diarrhea, abdominal pain, or itching in or around their mouth or throat. The panel agreed that if a patient with ASD has symptoms of food allergies, doctors should ask questions, do a physical exam, and do tests to see if they might have food allergies. A person with ASD may have trouble answering some of the questions a doctor might ask about possible allergies. Other family members may be an important source of information when the doctor is taking this history. If a parent or siblings have allergies, the patient with ASD might be more likely to have allergies.

There are many types of allergies and managing them may be complicated. If necessary, the child’s doctor may refer the child to a specialist (an allergist). A good allergy program with help from a multi-disciplinary team should lessen the allergy symptoms and may improve some behaviors of people with ASD.
VI. Immune System and ASD and Gastrointestinal Problems in people with ASD (Statements 17-20)

The expert panel stated that some studies talk about a relationship between inflammatory GI disease and the immune system of people with ASD. This research is still new but is very promising. We will know more about this as researchers do more studies in the future.

There is also promising research that suggests problems with the immune system may explain the changes seen in the development of the brain and nervous system of people with ASD. The expert panel stated this is an important area for future research.

Scientists are also conducting genetic studies to see how genes might be involved in GI problems in people with ASD. Genetic studies are also helping us to understand why there seems to be sub-groups of people with autism. This is important research and we should know more about this in the future. Genetic studies and ASD are discussed in another Science Brief.

What does this mean for my child and my family?

If a person with ASD has a GI problem or a food allergy, then this person may be put on a special diet by their doctor. However, we do not have good research on whether special diets help people with ASD communicate or interact better.

Currently, we do not know a lot about people with ASD and allergies. If a parent or sibling of a person with ASD has allergies, the person with ASD may also have allergies. Talk to your child’s doctor if you think your child might have an allergy.

Research on the immune system of people with ASD is still new. We need more research before families can use the information.
Glossary of Terms

**Nutrient** – Chemicals that our bodies need to live and grow that mostly come from food we eat. Examples of nutrients are vitamins, minerals, and proteins.

**Nutritional Deficiencies** – Not enough nutrients in someone’s diet. This can affect, for example, the strength of someone’s bones, how they grow, and many other things.

**Overweight** – A person whose weight is heavier than 85 out of 100 people the same age and gender.

**Adverse reaction** – General term used to refer to any unpleasant reaction that happens after eating food.

**Immune response** – The immune response is how your body recognizes and defends itself against bacteria, viruses, and substances that appear foreign and harmful to the body. It helps to protect people from disease and illness.

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