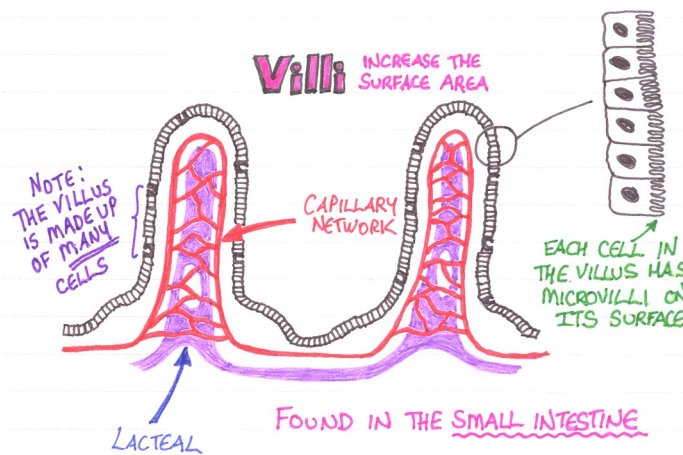


Why Healing The Gut In ASD Children Must Be A Priority

As I have discussed in *Gastrointestinal Issues in ASD*, these children suffer from a wide range of gastrointestinal issues. When I first started treating my autistic son many years ago there was little information available compared to what is available now. These days there is a huge amount of research showing that ASD children do have undiagnosed gastrointestinal issues.

Lets look at why healing the gut should be a priority in the treatment of ASD children. The gut is a very complex organ interacting with its environment, the gut flora, the immune system and the nervous system. When it becomes damaged and inflamed it simply will not work as intended. The absorptive surface of the gastrointestinal tract is greatly increased by microvilli that project into the gut lumen.



These microvilli are responsible for the absorption of nutrients, production of enzymes and a protective mucus layer. The enzymes that are required for proper digestion are primarily found at the tip of the microvilli. What would be the result if half of the microvilli (pictured left) were destroyed? Where are the enzymes that we need to break down gluten/ casein, etc.? Half of the area responsible for absorbing our nutrients has disappeared!

Should it be a wonder that so many children are so low in vitamins, minerals, and amino acids. Would it be a surprise that our children feel pain, are nauseous or are uncomfortable after eating?

Having experienced abdominal pain due to diverticulitis myself, I can understand why a non-verbal child would want to bang their head against the floor to help with the pain!

If the food is not being digested well what is happening to it? It becomes a great source of food for resident bacteria. Add in an antibiotic and kill off some of the friendly bacteria and the bad bacteria and yeast don't have anything to impede their growth and small and large bowel overgrowth can occur.

Why do our children self exclude so many foods? Possibly they are trying to tell us something. If you eat a food and it gives you pain because you have an inflamed gut, are you going to be silly enough to keep eating it? They are cautious with new foods as they may possibly react to these foods. Possibly they crave some foods due to the opioid effect, so it dulls their pain.

Special Diets

Many children improve on gluten/ casein, soy , corn free diets. Parents report additional improvements on the Single Carbohydrate Diet, GAPS, low oxalate diet, etc. By removing food sensitivities that may be irritating the gut, and giving the gut time to heal, children increase in weight and begin to thrive. They begin to eat a wider variety of foods. Interestingly, some parents report that after following a GF/CF diet for at least a year, their children can then tolerate small amounts of gluten, casein or other previously restricted food. I suspect that what in fact is happening is that changing the diet and eliminating food sensitivities gives the gut a chance to heal. The microvilli regenerate, the enzymes are now present and more nutrients can be absorbed. The gut begins to work again and there are no unpleasant symptoms after eating.

A word of warning

I have now had a number of incidences where once children have been on a GFCF diet and are doing very well, parents have decided to introduce gluten to see if they can tolerate gluten. I have now seen two children who did not appear to react to the reintroduction of gluten. They were both STILL gluten free for most meals, EXCEPT they had a sandwich at lunchtime for school. All was well for two months, but by the fourth month, both children has significantly regressed. For a practitioner as myself, this caused considerable confusion for some time as changes were made to their supplements over this time, and it was assumed the regression was due to some issue with the supplements. Eventually both children were recommenced on a GF diet. It took one month for one child to recover and over two months of the other child to recover. The message is clear, do not become complacent with gluten. Gluten regression can creep up very slowly, confusing parents and practitioners as to why a child may have regressed over the previous months.

Zinc

The cells within the stomach that produce hydrochloric acid for digestion need adequate zinc. However, adequate stomach acid is needed to be able to absorb zinc. Zinc is one of the primary supplements for our children. So by supplementing zinc or increasing stomach acid we are helping to restore both zinc status and stomach acidity. However zinc is also needed for the pancreas.

Pancreatic enzymes

Zinc is needed for the proper functioning of the pancreas and production of adequate pancreatic enzymes. A deficiency of zinc will decrease the available pancreatic enzymes available to be released into the small intestine following a meal. Also, the pancreatic enzymes are active over a narrow pH range. If the conditions are not optimal for enzyme activity then they will work poorly at best. Supplementing digestive enzymes that often have been selected to act over a broader pH range is often found to be beneficial. However this does not address the underlying issue of an under functioning gut.

Vitamin B12

Great improvements are reported for those children that are given vitamin B12 injections. No doubt they are low and need B12, for the proper functioning of the nervous system, methylation, carbohydrate metabolism and many other functions. Importantly, vitamin B12 is absorbed in the ileum. This is the area of the gut that is reportedly inflamed (lymphoid nodular hyperplasia), no wonder that children do well on vitamin B12 injections as it bypasses the oral route. Other factors that can impede vitamin B12 absorption include bacterial overgrowth and pancreatic insufficiency.

Diarrhoea / Loose stools

Diarrhoea or loose stools increases gastric motility so that food passes through the gut at an increased rate, therefore there is insufficient time for proper digestion to occur. Undigested food reaches the large intestine and there are considerably more food particles for the resident bacteria to ferment, producing short chain fatty acids that further irritate the gut lining.

Amino Acids

Studies have indicated that there are essential amino acid deficiencies in ASD children consistent with poor nutrition. Undoubtedly children who self exclude high protein foods will naturally be deficient in key amino acids. However if the child's gut is unable to breakdown complex proteins into their amino acid constituents and able to absorb them efficiently or has gut motility issues this whole problem will be compounded.

Secretin

Secretin has been used with mixed results in ASD children. Secretin is required for the secretion of pancreatic juice by the pancreas. The hormone secretin is produced in the tips of the microvilli in the gut. If there is inflammation within the gut, there will be destruction of the tips of the microvilli, secretin release will be compromised and the pancreas will not release adequate pancreatic enzymes. Adding in secretin via injection or nasally activates the pancreas, improves digestion and helps to control gut dysbiosis.

Probiotics

Probiotics is an interesting issue. Many people use probiotics often in very high concentrations. Some parents have reported that despite being on probiotics for extended periods, they were surprised to find that a Complete Digestive Stool Analysis (CDSA) has shown low levels of Lactobacilli or Bifidobacteria. All micro-organisms within the gut have optimal conditions under which they will thrive. Deprive them of these conditions and they simply will not grow. Low levels of beneficial bacteria would indicate that the conditions within the gut are not conducive for their growth. If this is the case simply adding in massive doses of probiotics is not the answer. Changing the conditions within the gut, would be a more obvious solution.

Regarding using high doses of probiotics within the gut long term, is an issue that I have some concern. We know that high dose probiotics produce chemicals that inhibit and help crowd out unfriendly gut bacteria and pathogens. However we must remember that the gut is also home to 400 species of other micro-organisms, many of which we know little about. What effect will high dose probiotics have on these other bacteria. For example, those that may have a problem with oxalates, supplementing with high doses of a particular probiotic may inhibit the growth of *Oxalobacter formigenes*, the bacteria that helps breakdown oxalates in the gut. What other beneficial bacteria are we inhibiting long term in the process? Perhaps this is perhaps why the GAPS diet is beneficial for some children as it is reintroducing naturally fermented products together with the food to help them re-establish within the gut.

Antibiotics

Parents have reported that their child improved while on an antibiotic, often to remove a gut pathogen, however soon after finishing the course of antibiotics the child regresses again. Antibiotics don't completely destroy all traces of a gut pathogen, however it removes sufficient numbers that they can be kept under control. If the conditions in the gut are not optimal for the growth of the friendly bacteria, then the bad bacteria will simply once again take over.

Candida

Parents seem to be constantly battling yeast issues in their children. Yeast can be notoriously difficult to eradicate from the gut. Once again if yeast is given the environment to grow it will grow rapidly. By limiting the environmental factors for yeast growth, any therapy for yeast reduction will be more effective. Sometimes we also need to consider the supplements that we are giving as lipoic acid and N-acetyl-cysteine can be utilised by yeast and can exacerbate gut symptoms

Hyperbaric Oxygen Therapy

One of the newer therapies being tried by parents to help recover their children is **Hyperbaric Oxygen Therapy (HBOT)**. HBOT is used for treating many conditions including wound healing and brain injury. The ability of HBOT to help enhance wound healing also has an important role in healing the inflamed gut. Indeed those parents that report that their child's behaviour or symptoms were significantly improved with HBOT, also report that gastrointestinal issues were also greatly improved. I believe that this is yet another indication of the importance of healing the gastrointestinal tract as being the primary issue that should be addressed in these children.

Concluding Remarks

It is becoming increasingly clear that any problem with the gut, whether it be due to bacterial, yeast or parasitic infection, or due to an underlying inflammatory condition in the gut will affect a child's behaviour. In non-verbal children we need to look closely for behaviours that may indicate that they are uncomfortable and in pain. Unfortunately, convincing medical practitioners to do a thorough evaluation of children suspected of having underlying issues, is an exercise in frustration. The next best option is to do a Comprehensive Digestive Stool Analysis (CDSA), an Organic Acid Test (OAT), an abdominal X-ray (KUB) or an intestinal permeability test.

It should seem obvious that if we help heal the child's gut then the effectiveness of other therapies will be more effective. No child will respond well to any therapy if their gut is inflamed and they are in pain or uncomfortable.