

Autism —The Biomedical Basics

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The parents are the primary healers for the autistic child. Of course, doctors are needed. However, without the parents, there are not enough doctors in the world to make all the observations and implement all the changes that are needed. Parents need to learn a lot, and they need to learn it as fast as possible.

Here is a compilation of some basic biomedical knowledge that may help parents. If you are new to this, then this list will seem overwhelming. Don't worry. Sometimes it takes hearing things quite a few times before the implications become clear. (If you would like more detail than found in this paper, consider purchasing the *Health Forum* books at www.dysbiosis.com)

Tolerance. A little irritation for a couple of weeks is normal upon starting something new. You might start with less if irritation is present. If a supplement or treatment isn't tolerated, try not to get frustrated. It may be tolerated later. Look at what is needed to balance that supplement and start there. Every supplement requires balance with several other supplements. Eg. Calcium and magnesium need to be balanced. If one isn't tolerated, try the other.

Monitoring Reactions. Testing is very important, especially when doing chelation or amino acid supplementation. However, perhaps even more important are the parent's careful observations of the child's emotions, learning ability, and physical characteristics. Keep a diary or notes. Some of the interventions can be started by yourself. However, before you attempt chelation, you definitely need to have a personal doctor for your child. You need the doctor to test and monitor your child before and during the chelation. Also, doctors are not infallible. Just because a doctor suggests that you try something doesn't mean that it will be correct for your child. Every child is different. Be vigilant.

Testing. If you don't have a doctor familiar with the tests you need, call up the labs like the Great Plains Laboratories and the Great Smokies Laboratories and ask for a referral. The Great Plains Laboratories even offers outreach programs where they come to your city with some autism doctors. This is a great way to get many tests done at once. There are also services on the Internet where doctors are available for the purpose of ordering a few tests. These services are excellent for doing some preliminary work, especially since some of the autism doctors are booked up six months in advance.

Before Chelation. As much as possible, the gut should be healed and the dysbiosis should be under control before starting chelation. (Dysbiosis means parasites, yeast, viruses and the wrong bacteria have over-whelmed the intestinal environment. Chelation means taking something to remove harmful metals like lead, tin, cadmium, and mercury.) Also, the liver and kidney function should be tested before starting chelation. Minerals and amino acids should be replenished and in balance. Glutathione and other anti-oxidants should be up. This takes a lot of work and a lot of patience. The good news is that sometimes just correcting the body chemistry will allow the heavy metals to leave on their own, without chelation.

Vaccinations. Vaccinations are suspected of triggering many cases of autism. Yet, I've heard parents say that they are considering giving more vaccinations to their autistic children. If you child has autism, their immune system is already in disarray. Continuing with more vaccinations could push their immune system further over the edge. Also, be careful with your other children.

If one of your children has autism, there is a greater than average chance that your other children are genetically or physically more susceptible to damage from vaccines.

Rotation and Variety in Supplements. You may want to gain variety in the way you give supplements. Eg, give beef pancreatic enzymes one day, and lamb pancreatic enzymes another day. If you have lots of supplements to give, ask your doctor if there are any that can be given less often. Eg, a good dose of pregnenolone will last a week, whereas a dose of folic acid will last 8 hours or less. Get a chart with all the supplements and check off which ones have been given recently. Give the child a holiday for a few days from some of the supplements. Notice if he gets better or worse.

The Craniosacral System

Decreased flexibility of the membrane that covers the brain can interfere with the proper flow and pumping of the fluid that bathes the brain. This fluid carries nutrients to the brain and removes metabolic byproducts. The membrane also contains chelating agents that help remove heavy metals from the brain. The membrane might be damaged by fevers (eg induced by a vaccine reaction), or by a mechanical injury such as a birth delivery using suction, or bending the head/neck at birth. The damage often manifests as compression at the base of the skull. Many parents have found that cranial manipulation has helped their children overcome this problem. The treatment procedure is not frightening. The practitioner places his hands on the head and gently stretches the membrane that covers the brain. This treatment decreases the head-banging, thumb-sucking, and wrist-biting behaviors often found in autism . Once this mechanical stretching of the membrane has been accomplished, the parents, with proper instruction, can help with the maintenance. For further information, contact the Upledger Institute, Inc. Phone 1-800-233-5880, website <http://upledger.com>

General Diet Considerations

Rotation and Variety in Diet. The rotation diet helps reduce allergy reactions. However, this makes fewer foods available for use each day. Thus you may tend to serve only one or two foods at each meal. This is not good. If at all possible, it is best to employ a wide variety of foods at each meal. This will help cut down on food allergy reactions. Use different combinations of foods. The body can become sensitive / allergic to specific combinations of foods. By changing the combinations served at each meal, you are adding in more variety.

Mold in Food. Many times it isn't the food that is causing a reaction, but it is the mold in it. Usually, canned vegetables and fruit have more mold in them than frozen. Frozen food usually has more mold than fresh. So use fresh fruits and vegetables whenever possible. Even condiments like catsup and mustard may have mold. Spices often contain mold.

GF/CF Diet. A gluten-free and casein-free diet has helped many of the autistic. (Gluten is a protein found in grains. Casein is a protein found in milk.) However, the diet needs to be started gradually. Otherwise, the withdrawal symptoms can be too severe. After being on the diet for a while, you can consider adding in DPP IV enzymes. These enzymes have helped many children. Don't try DPP IV before starting the GF/CF diet. There could be a strong reaction. Even those who have been on the GF/CF diet for months will sometimes experience an initial poor reaction to the DPP IV enzymes. If this poor reaction is too harsh or continues for any length of time, then the use of DPP IV needs to be reevaluated for your child. The DPP IV enzymes can be purchased from Kirkman labs (www.kirkmanlabs.com phone (800) 245-8282) or Houston Nutraceuticals (www.houstonni.com phone (866) 757-8627). After being on these enzymes for a while, some of the children have been able to tolerate casein and gluten again.

SCD diet. The Specific Carbohydrate diet allows the intestines to heal. Only carbohydrates that are easily digested are allowed. No grains or potatoes. Fruits and vegetables are to be peeled. In the beginning, the fruit and vegetables are also to be cooked. Nuts are allowed. However, be careful with the amount and quality of nuts in this diet. Nuts, especially peanuts, can be moldy. A child might also have an allergy to a particular nut. Additionally, most nuts are too high in linoleic fatty acids to be healthy in large quantities. To implement this diet, get the book *Breaking the Vicious Cycle* by Elaine Gottschall, BA, MSc. Then join one of the Internet discussion groups that will help you implement the diet. www.scdiet.org

Feingold Diet This diet supports the function of the PST enzyme, which is usually weak in those with autism. Foods high in phenolics and salicylates are excluded. Phenols are present in food dyes, in highly colored fruits and vegetables, in bioflavonoids, phytoestrogens and in carotenoids (carotene, lutein, lycopene, xanthophylls, and zeaxanthin).

Sarah's Diet. Max and Sandra Desorgher have found that avoiding plant colors of carotene, lutein and lycopene is sometimes very helpful for the autistic. They have a lot to say about this at their website. www.saras-autism-diet.freesevers.com At the very least, it may be prudent not to use supplements of these colors.

Soy. This should not be part of the diet. It is too closely related to casein and gluten. Also, the phytoestrogens in soy will put an additional load on the PST enzyme.

MSG (monosodium glutamate), Modified Food Starch and hydrolyzed vegetable protein. These are very hard on a person who has been subjected to yeast overgrowth. Don't feed them to your child. Coenzyme B6 may help reduce the reaction to these substances.

Protein

If the child avoids protein, then you need to be wary of a possible problem with ammonia. Get some lab tests. There might be a blockage in the removal of ammonia. Or it could be that there is an overgrowth of certain gut bacteria that produce a lot of ammonia from the protein in a meal. In this situation, forcing more protein or the wrong amino acids on a child may be quite harmful.

Chicken. If at all feasible, use organic chicken. Arsenic is legally fed to chickens to get rid of parasites. Some of the arsenic ends up in the meat.

Pork. This may be necessary to add variety to the meals. However, the fat from pork should be avoided. The fat from corn or grass-fed pigs is too high in polyunsaturated oils from the corn and grass that they have been fed. (Pigs are not designed to eat grass like sheep and cattle. Sheep and cattle have bacteria in their stomachs that converts unsaturated fats into saturated fats. Pigs do not. Therefore, the fat profile of pigs resembles that which they have been fed.)

Beef. If possible, use grass-fed beef instead of the normal supermarket beef. There should be less estrogen and pesticides in the fat. If seizures are present, organic chicken may be safer than beef (assuming there isn't an allergy or sensitivity to chicken).

Emu. Emu meat is very lean and tastes somewhere between beef and chicken. There are now many farms that sell emu meat. Check for a farm near where you live. Have it shipped overnight with dry ice.

Fats and Oils

Coconut oil. The lauric acid found in coconut oil will convert into monolaurin in the intestines. The lauric acid and monolaurin together will kill off some parasites, yeast and viruses (including measles). Give the body a chance to get used to this change. Start with no more than a teaspoon of coconut oil per day for an adult. (Less for a child.) Mix the oil with some fiber (eg a grated carrot) so that some of the oil will make it to the last part of the intestines. When using coconut oil, it can increase metabolic rate. This increases the need for B6 and other B vitamins. More zinc and other minerals may also be needed. Therapeutic doses for an adult are three tablespoons of coconut oil per day. If there is an allergy to coconut, try palm oil instead. This is also high in lauric acid.

Linoleic fatty acids. These are elevated in many of the fatty acid profiles of the autistic. Too much linoleic fatty acid in the diet will decrease IgA, which is needed to protect the intestines. The linoleic fatty acid will also increase free-radicals and will increase yeast growth in the intestines. Oils that contain a high proportion of linoleic fatty acids are safflower, corn, soy, avocado and many of the nut oils. Avoid these. Common sources of excessive dietary linoleic fatty acids are restaurant French fries, oily pizza crusts, and commercial salad dressings. If you are looking for a safe substitute, olive oil has a low percentage of linoleic fatty acids. Don't be taken in by the advertisements that compare Canola to olive oil. Canola oil is not a good substitute for olive oil. Canola is much higher in oxidized omega-3 oils.

Flax oil. Flax oil has some benefit. It helps to balance out the excessive linoleic fatty acids found in the typical American diet. Perhaps this is why some people feel better with a little flax oil in the diet. However, if we were eating a more natural diet, without all the linoleic fatty acids in it, then there wouldn't be such a need for the flax oil. Many of the autistic are getting too much flax oil. **They test high in linolenic fatty acids, which are the predominate fatty acids found in flax oil.** The best strategy is to limit the intake of both linoleic fatty acids (corn oil, safflower oil, soy oil, etc) and limit the intake of linolenic fatty acids (flax oil). Be especially vigilant with kids that have migraines or seizures. They may not tolerate flax oil.

Flax seeds. The mucilage in these helps with bowel regulation. However, there is also a downside to flaxseeds. Flaxseeds contain a chemical that interferes with iodine entering the thyroid gland. Without iodine, the gland cannot produce thyroid hormone. Three tablespoons per day of flaxseeds has been known to cause thyroid goiter. Instead of flaxseeds, consider trying a small amount of prickly pear cactus leaves for their mucilage content. They will help sooth the intestine. However, they also can interfere with the absorption of fats and carbohydrates. So only a small amount is appropriate. You will find prickly pear cactus leaves in many Mexican markets and some ordinary grocery stores. Scrape off the thorns with a knife. You don't have to remove the green covering. Then chop the leaves and include a little bit when you cook your eggs or other dishes. The leaves have anti-viral properties. Mucilage is not recommended on the SCD diet. So a judgement call will have to be made here. Observations are your best friend.

Primrose oil. The autistic person is often low in the type of fatty acids found in primrose oil. Sometimes a small supplement of primrose oil is very helpful. At other times it is not tolerated. Be observant when you try this. The average person doesn't need a supplement of primrose oil. That is because their desaturase enzymes are working and their anti-oxidants are high. The goal should be to change the body chemistry enough that supplements like primrose oil are not needed.

Desaturase enzymes. Often the delta-6 desaturase enzyme is not working properly in the autistic. Inadequate thyroid interferes with the delta-6 desaturase enzyme. So do viruses. There are many nutrients that support the desaturase enzymes and the proper use of oils. In particular, a person needs enough vitamin A , E , B6 , niacin, B12 , and biotin to use the oils properly. Also needed are the minerals of selenium , magnesium , manganese , sulfur, and zinc . Protein is important here too. Excessive polyunsaturated oils (eg, soy, cottonseed, safflower, flax, fish and corn oil) will interfere with the desaturase enzymes. Olive oil does not seem to interfere with these enzymes.

Fish Liver Oil. Keep cod liver oil or other fish liver oils refrigerated or in the freezer. If it develops a strong fish smell, it has gone bad. The brand Nordic Naturals has a good reputation for freshness and purity. They add in some vitamin E to help keep the oil fresh. (website www.nordicnaturals.com and phone 800-662-2544,)

Fish liver oil is very important for its fat-soluble vitamins A, D, E, and K. These vitamins reduce inflammation. In particular, enough vitamin A is critical to the health of the intestines. Yet vitamin A may be low due to diarrhea or a measles infection. These deplete the body of vitamin A. Unfortunately, fish liver oils are not always tolerated. If fish liver oil is not tolerated, try separate supplements of these vitamins. You can also get some of these vitamins in a water-soluble form, which may be better tolerated. Like everything else, be prudent in the amount used. Too much or too little of these vitamins is not good. If you are going to use high doses of these vitamins, make sure your doctor monitors this with blood tests, and make sure you are very observant of the changes in your child.

Fish Oil. Keep refrigerated. This isn't as high in the important fat-soluble vitamins as fish liver oil. However, like fish liver oil, it does help keep platelets from clumping together. Although some fish oil in the diet may be helpful, too much of it can increase free-radical activity and contribute to seizures. It can also increase the permeability of the capillaries and contribute to "leaky gut." A small amount of fish liver oil may be a better choice than plain fish oil for this reason.

Emu oil. If processed at low temperatures, emu oil has better anti-inflammatory properties than fish oil. Emu oil also works better on scarring when combined with vitamin E. Unfortunately, most companies heat the oil too much. To obtain emu oil that has been treated properly, see websites www.australis.com.au/hazelwood and <http://www.crohns-colitis.com/pages/p-aust-nat-health-prod.html>

Butter. This has very little casein in it. Ghee, which is clarified butter, would have even less casein. Raw butter, or at least butter from pasture-fed animals is considered the best quality. Butter and ghee are soothing to the intestines.

Cleaning up the Environment

Mold in the Environment. Clean mold off of walls with soap and water. Fix any water leaks. Consider using a surface stabilizer in showers and areas that tend to gather mold. Safe 2 Use carries a surface stabilizer. (phone 760-240-5881 and website www.safetouse.com) Unfortunately, even if you can't see the mold, it may be under the floor, and you are being exposed to its toxins. You can reduce the moisture in a damp area with portable dehumidifier machines (both small and large models are available). You can also purchase jars of calcium chloride crystals that remove moisture from the air.

Ozone. Some people employ this to sanitize a room. It kills bacteria, fungus and viruses. It can also oxidize some chemicals, including carbon monoxide and pesticides. (It breaks down the chemicals to a form that may be more tolerable. It doesn't trap them like some charcoal filters will.) However, it is not healthy to breathe ozone. It can cause inflammation and constriction of the airways. If you sanitize a room with ozone, make sure the room is thoroughly aired out before using it. Some machines (like the high end Ecoquest) have more than one level of ozone that they produce. One mode of operation puts out a little ozone all the time. This method of operation is meant to be used while you are in the room. This may or may not be tolerated. The other mode of operation puts out a large amount of ozone for a couple of hours. This last feature is meant to clean the room while you aren't present. Afterwards the room has to be aired out for a day or two. Even though you have to be careful about how you use these ozone generators, some people find them very effective. There are also water ozonating units that help you clean your fruits and vegetables. The ozone is bubbled through water. Soaking your fruits and vegetables in this water will break down the pesticides.

HEPA Filters. These mechanically remove small particles from the air. They don't destroy chemicals. If possible, test how noisy a model is before purchasing it.

Carpet. This is a reservoir for dirt, mold and toxins. Vacuum often with a HEPA vacuum. If you replace the carpet with wood or laminated flooring, get the kind that doesn't need glue.

Paint. When you paint, use low VOC paint. Be careful. Some companies say their paint is low VOC, but it really isn't. They are using a loophole in the way the law defines low VOC. Some colors have more VOC than others. Safecoat carries low VOC paint, phone 619-239-0321 website www.afmsafecoat.com

Bedding. Wash bedding in hot water to kill dust mites. Sunlight also kills dust mites. Keep the dust off of the bedding by keeping a bedspread or sheet over it during the day. Just before bedtime, remove the bedspread or sheet and place a fresh sheet over the bedding. This will keep dust from accumulating in your blankets, and it will reduce the amount of dust the child breathes. Change pillow cases often and consider getting an allergy pillow cover encasing.

Household Chemicals. Perfumes, cleaning products and paints contain many irritating chemicals. Baking soda and vinegar are good substitutes for many cleaning products.

Minerals

Minerals. One of the first things that should be addressed is increasing the minerals in the body and balancing the mineral profile. Individual minerals need to be not too high and not too low. Be aware that if you give a lot of just one mineral, several other minerals tend to go down. Here is a book that will tell you which minerals deplete each other: *Mineral and Trace Element Analysis* by Eleonore Blaurock-Busch, PhD . The book is quite informative, and available through a company that does mineral testing. (Trace Minerals International. www.tracemin.com (800) 437-1404.) Also, there are some good articles on mineral balancing at www.acu-cell.com

Some companies that do hair mineral analysis wash the hair first and others don't. Those that wash the hair say that this removes contaminants from the environment. Those that don't wash the hair say that the washing chemicals are too harsh. The chemicals remove too much of the minerals and produce a very inconsistent result. I don't know who is right. There are three other ways to determine mineral balance. These are blood, urine and buccal cell (tissue) testing. Of these, the buccal cell is considered the best.

Zinc. 90% of the autistic are low on this mineral. Many parents use a skin cream of zinc sulfate to bypass the poor absorption problem of the gut. However, too much zinc will cause yeast overgrowth and suppress the immune system. This is one reason why your doctor may keep testing mineral levels every few months. You don't want to get too much zinc.

Copper. Too much or too little copper is not good. Very low copper levels can lead to anemia and other problems. However, copper is usually high in the autistic. Supplements of molybdenum, manganese, zinc and vitamin C will lower copper levels.

High copper increases the excitotoxicity of the amino acid cysteine. If you know the child is high in copper, then avoid food high in cysteine. This means no whey, no onions and no garlic. Also, most muscle meat is high in cysteine. The heart muscle would be a better choice, because it is low in cysteine. Since glutathione contains cysteine, don't use oral supplements of glutathione when there is copper poisoning. The glutathione breaks down into cysteine, glutamic acid and glycine when in contact with stomach acid. A nasal spray of glutathione would be safer.

Selenium. There is likely a need for more selenium. (Mercury binds to selenium and wastes it.) However, it is not advisable to give selenium while copper levels are high. Selenium from biological sources is usually tolerated better. Solaray and Jarrow make these products. Solaray's Bio-Active selenium is made by growing mustard in selenium-rich water. (The selenium in this product is mainly in the selenocysteine form.) Jarrow sells Activated Selenium, which is made with broccoli.

Calcium. Without enough calcium, the autistic can suffer eye pain and may do physical harm to their own eyes. Make sure they get enough high quality calcium. Some calcium products, especially those made from bone meal, are contaminated with lead. Get a calcium supplement that is tested for purity. More supplemental calcium must be given when growing children are put on milk-free diets. Also, be particularly careful if the children are given the oral chelation agent called EDTA. Plain EDTA is not absorbed well from the intestines. Since most of it remains in the intestines, it will interfere with the absorption of calcium and other minerals. In general, watch out for all chelators. Almost all chelators are going to deplete the body of minerals. Even if you are using a chelator like Metal Flush that is relatively gentle on mineral stores, you will still have to make sure there is plenty of minerals getting into the body. As the heavy metals are removed from biologically active sites, good minerals will be needed to take their place. If there are abnormally high levels of calcium in the hair samples, sometimes this is an indication of mercury poisoning, not an indication of excess calcium. Use the buccal cell test for calcium. It is the most accurate. (See comments about buccal cell testing under the magnesium section.)

Salt. Dr. Mary Megson suggests letting autistics have salt. If there is a G protein defect, three of the channels that remove calcium from the cells are blocked. The only other major means of removing calcium is with salt.

Manganese. Elevated manganese is associated with learning disabilities. If manganese measures high in the body, check your water supply. If manganese measures low, you need a supplement. Low levels of manganese contribute to hypoglycemia. Even if manganese levels are normal, a supplement of it should be included when taking large amounts of zinc, calcium, magnesium and vitamin B6.

MSM. Often you find adult dose recommendations of several grams per day. However, many adults and children with intestinal difficulties have found that this is way too much MSM to start. The body needs a chance to get used to having sulfur again. Consistent doses of merely 250 mg of MSM per day for adults have shown benefits. Although MSM clears from the blood stream fairly rapidly, its effects are longer. Do not consider increasing the dose until after being on the present dose for at least three days. If you do work up to the higher doses, be aware that increased sulfur intake can lower zinc, copper, selenium, calcium and molybdenum. When mercury poisoning is present, Andy Cutler (author of *Amalgam Illness: Diagnosis and Treatment*) suggests that MSM may do more harm than good. It will move too much mercury around without escorting it out of the body. Instead of using MSM, he suggests that sulfates are a more appropriate source of sulfur when mercury poisoning is present.

Sulfates. Sources of sulfates are chondroitin sulfate, Epsom Salt baths, zinc sulfate and other minerals in the sulfate form. Sulfates are cleared from the blood fairly rapidly. People have noticed that giving sulfates at least twice per day helps to sustain the benefits. You can dab on a mixture of Epsom Salts and water onto the skin, or you can make a skin cream. Dissolve about a teaspoon of Epsom Salts in a teaspoon of warm water. Then add three or four teaspoons of coconut oil to create a skin cream. (If the coconut oil is hard, sit the bottle in a bowl of warm water for a little while.)

Magnesium. Many children have improved when given this mineral supplement. It is one of the first things that doctors suggest replenishing. A good way to get more magnesium is with Epsom Salts baths. Use an oral supplement of magnesium if there is constipation. This will help relieve this situation. Although it is unusual to hear of an overdose of this mineral, it does happen. Don't use unusually large doses for the child's body weight without careful testing/monitoring. The most accurate way of monitoring this mineral is with a buccal cell test. The sublingual epithelial buccal cell test is available from IntraCellular Diagnostics, phone (800) 874-4804. This is the only lab doing this buccal cell test at present. The test includes magnesium, calcium, potassium, sodium, and chloride.

Epsom Salt Baths. Epsom Salts is magnesium sulfate. Use only brands that have been tested for purity. Start slowly. Most people use a cup of Epsom Salts in a bath for 20 minutes. However, to start, use less Epsom Salts and less time. The magnesium will lower blood pressure. Some will feel faint at first. Add in a cup of baking soda to the bath. This will improve the absorption of minerals through the skin. Not all children will tolerate these baths.

Iodine. Too much or too little of this is not good. Iodine is necessary for the formation of the thyroid hormone. It also helps keep pathogens under control. Yet too much iodine can form a complex with unsaturated oils and become toxic to the thyroid. A urine iodide test is one of the more accurate ways to test this mineral. However, many people use a skin test to see if enough iodine is present. A one or two inch square patch is painted on the skin using Lugol's iodine solution. (Lugol's Iodine Solution contains water and 1.5 oz of granular iodine per quart and 3 oz of potassium iodide per quart.) If the color disappears before 24 hours, then this is an indication that more iodine is needed. To increase iodine stores, the iodine can be painted on the skin each day until the color remains. Even if low, iodine might not be tolerated if the person has elevated

antigens to thyroid. Be careful. Some people are allergic to iodine. Exposure to chlorine, bromine and fluoride will displace / deplete iodine. Common sources of exposure are swimming pools and pesticides.

Chlorine. This can reduce taurine. It can also interfere with the effectiveness of NDF, a metal chelator. It can also displace iodine. You can get charcoal filters that fit over the bathtub faucet or on the showerhead to remove the chlorine.

Fluoride. This suppresses thyroid and makes mercury more toxic. Look for hidden sources of fluoride. The most common hidden source of fluoride is reconstituted fruit juice that is made with fluoridated water.

Bath Balls. These are used to remove chlorine and fluoride from the bath water. Swish the balls through the water and then remove them before adding Epsom Salts. Otherwise you will ruin the bath balls.

Digestion Aids

Stomach acid. This is needed to absorb minerals orally. It is often too low. There are several ways to determine whether or not the stomach acid levels are adequate. One of the most simple tests is to give bicarbonates and watch the reaction. Dr. Joseph A. Debé suggests the following procedure. For an adult, put a quarter teaspoon of baking soda in 8 ounces of water and then have them drink it first thing in the morning, before eating or drinking anything else. (A child would not have to drink the whole 8 ounces.) Then check how long it takes before the person belches. If it is longer than 2 or 3 minutes before a belch is produced, then this is an indication of poor stomach acid production. A lot of immediate repeated belching might indicate excess stomach acid.

The stomach acid production may have to be temporarily supported with a supplement of betaine HCL. This can be very helpful. An adult will usually take about 10 to 30 grains of betaine HCL with a meal, which is usually one to three pills. However, this supplement should not be used if there are stomach ulcers or esophageal lesions. Stomach ulcers are usually associated with an H. pylori infection. You can get a blood or breath test for H. pylori. It is a very common infection in those with intestinal difficulties. An H. pylori infection will lower your normal stomach acid production. It will also interfere with your absorption of B12. Common treatments for a H. pylori infection are antibiotics (Omeprazole, Losec, and Amoxicillin), vitamin C, grapefruit seed extract, deglycerolized licorice, bismuth (Pepto-Bismol, but don't overdo this.), mastic gum, Active Manuka honey, magnesium, zinc and monolaurin.

Baking Soda, Alka Seltzer Gold and Tri-Salts. Baking Soda is sodium bicarbonate. Alka Seltzer Gold is sodium and potassium bicarbonates with citric acid. (Don't use regular Alka Seltzer.) Tri-salts from BioTech Pharmacal is a mixture of calcium carbonate, sodium bicarbonate, and potassium bicarbonate. Individuals may do better with one of these than the others. These carbonate and bicarbonate products can help stop a bad reaction to a food. They can also be used to help neutralize stomach acid. Approximately an hour and a half after eating, the stomach dumps its contents into the small intestine. (The time depends on the size of the meal and how much fat was in it. Fat slows things down.) Then the pancreas dumps in bicarbonates and pancreatic enzymes. A little extra bicarbonates an hour or two after a meal is often helpful.

Digestive enzymes. Dr. Bradstreet warns that children should not be put on digestive enzymes until after they have started the GF/CF (gluten-free, casein-free) diet. Otherwise, the addition of these digestive enzymes may raise levels of opioids. Many people suggest using “plant” derived digestive enzymes because these work over a wide range of pH. However, you may want to also try the pancreatic enzymes and see if they are better for your child. Pancreatic enzymes are what the body was designed to use. The body regulates them by using pH to turn them on and off. You can purchase beef, lamb and pork digestive enzymes from Allergy Research / Nutricology. Then rotate their use to avoid setting up an allergy to them. These will help eliminate yeast in the intestines. Ever since pancreatic enzymes first appeared on the market, there have been claims that they are a waste of money. The claim is that pancreatic enzymes are useless since the stomach acid will destroy them. Don't worry about it. When the enzymes reach the intestines, the environment is more alkaline, and they regain some of their effectiveness. Many people have found them effective. However, there are differences between brands. You may find some brands are not tolerated and others are.

Bile. Bile is created by the liver, delivered to the gallbladder and then stored there until needed. When food from the stomach enters the small intestine, the gallbladder empties the bile into the intestines. At the same time, the pancreas delivers enzymes and bicarbonates to the small intestines. If for any reason, there isn't enough bile and lipase (a pancreatic enzyme), then the absorption of fat and **fat-soluable vitamins** is impaired. The stool will be light-colored. Supplements of bile are available from www.DEWSnatural.com Although adequate bile salts are very critical, you can get too much. If a lot of bile reaches the large intestine, it acts as an irritant. Bile will reduce bacteria growth.

No-Fenol This product is supposed to help the body separate the phenolics from carbohydrates and perhaps allow the body to dispose of the phenolics better. (phone (866) 757-8627 and website www.houstonni.com) Many parents have found this digestive enzyme supplement very helpful.

Probiotics

Probiotic supplements can be bacteria, yeast or even transient parasites. These supplements alter the flora of the intestines. Probiotic supplements generally don't overwhelm the existing intestinal bacteria with their numbers. They change the environment. This shift in environment changes the type of bacteria that are able to survive in the intestines. As the environment changes, the bacteria mixture shifts. Where it ends up doesn't depend just on the type of probiotic taken. It also depends on what bacteria, viruses, and parasites were there at the start. This is why each person's reaction to a probiotic is so different. Examples: One person may find that bifidus makes them bloat, and yet another person will adamantly insist that bifidus is the only probiotic that is gentle enough for their system. Another person might say that soil-based bacteria were wonderful at first, but then it seemed to make things worse. Acidophilus may increase D-lactic acid too much in one person, but in another, the acidophilus may replace some harmful bacteria.

Probiotics and Protoza. Dr. Leo Galland warns that probiotics could increase the growth of protozoal parasites. Therefore, one must first take steps to eliminate or reduce the presence of protozoal parasites before employing probiotics. (There are homeopathic remedies, herbs, MSM, monolaurin and antibiotics that can help eradicate protozoa infections.)

Rotation and Variety in Probiotics. The body has an immune response to probiotics. One way to realize the benefit of this immune response is to rub some of the probiotics into the gums. This way, the probiotics don't have to make it past the stomach acid. Yet, you still get an immune

response. (Do this after the teeth have been cleaned.) Another way to get the best immune response is to start and stop the probiotics. It takes 2 to 4 weeks for the body to set up an immune reaction to the probiotics. After introducing the body to the probiotics, stay on them for 2 to 4 weeks. Then take a break for a similar amount of time. Or better yet, every 2 to 4 weeks, change the type of probiotic employed. This will improve the body's immune response to the probiotics.

FOS and Inulin. FOS and/or Inulin are added to some probiotic products to support the growth of good bacteria. Some people claim these are beneficial and others say they make things worse. So if you decide to use these, be very careful / observant. Unfortunately, FOS and inulin can also feed some bacteria and yeast that are harmful. Yet, the proponents claim that FOS and inulin feed more good bacteria than bad bacteria. Even if the FOS and inulin do as claimed, there is still another potential problem. FOS and inulin may encourage the growth of bacteria in the small intestine. For a healthy person, this isn't a problem. The body will just remove any excess bacteria with a strong constriction wave. (Excessive bacteria in the small intestine can be quite harmful even if it consists of "good" bacteria.) For those where this constriction wave is missing or weak, you don't want to encourage the growth of bacteria in the small intestine by feeding FOS or Inulin.

Small Intestine Bacteria. Besides correcting the type of bacteria in the intestines, you have to consider where the bacteria reside. The small intestine should be relatively clear of bacteria. To keep the small intestine clear of bacteria, the body squeezes the debris and bacteria out of the small intestines. In order for this constriction wave to work properly, you have to work on getting rid of intestinal inflammation and on normalizing the body's hormones and neurotransmitters. Also, just the presence of this excess bacteria can interfere with the contraction wave. Diet can help reduce the amount of bacteria in the small intestine. Usually, the excess bacteria is located at the end of the small intestine. If you eat food that is easily digested, then most of the nutrients will be absorbed before reaching the last part of the small intestine. This way you don't feed the excess bacteria in the latter part of the small intestine.

Soil-based Probiotics. These are not normal residents of the intestine. So there is some concern about using them long term. However, many people have found that they are very helpful. Presently, there are only a few brands on the market. Each uses a different base material. One of these products purposely adds in plants that are high in phytosterols and phytosterolins.

Phytosterols and phytosterolins. These are starting to show up in many different health products. These shift the immune system in a manner that is usually helpful to people who have dysbiosis. However, some caution is warranted. Beta-sitosterol, the main plant sterol, is considered a phytoestrogen / hormone disrupter. It has been shown to alter the reproductive systems of rabbits and fish. There is risk with any phytoestrogen.

Antifungals

Before starting on antifungals, it is best to implement a diet that reduces yeast growth. Otherwise, the antifungal may kill too much yeast too quickly, and make the person sick. If you first get a stool analysis, then you will have an indication of which yeast are the most predominant in the intestines. Then you can employ the antifungal that has the best chance of reducing this particular yeast growth. There are both herbal and prescription medications that can be used. Many of these affect the liver. So one must be observant and careful. Also, if one antifungal doesn't help, try a different one. It may work.

Nystatin is considered the safest prescription antifungal. It is also the most commonly prescribed antifungal medication for children. However, the usual Nystatin prescription contains additives that might not be tolerated. To avoid the additives, you can have your doctor write a prescription for intravenous Nystatin, but then you administer it by mouth.

Sometimes the main problem isn't yeast, but harmful bacteria or parasites. Although not perfect, stool and urine tests can also help you determine the extent of these problems. Once you know what is present, your doctor can choose the most appropriate treatment.

Vitamins for Proper Methyl Metabolism

Folic acid. It is best to spread this B vitamin out over the day. Take the folic acid three times per day or more if your schedule permits. Folic acid supplements should be balanced with B12. There is now an active form of folic acid available called folinic acid. Folic acid is particularly important when arsenic poisoning is present. Asparagus contains a lot of folic acid. Asparagus also is a source of FOS.

B12. Intestinal problems often lead to a lack of B12. B12 can be administered via a shot (several times per week), or it can be brought in through the skin using DMSO. A nasal spray can also be made. There are several different types of B12. The form of B12 called methylcobalamin supports the healthy structure and functioning of the brain and nervous system. The form of B12 called adenosylcobalamin is readily stored in the liver and mitochondria. (Adenosylcobalamin is also known as cobamamide, cobinamide, or dibenzocozide.) The form of B12 called hydroxycobalamin will convert in the body to the other two forms of B12 just mentioned. There is also a form of B12 called cyanocobalamin. It has to be converted in to the other forms before it can be useful in the body. Cyanocobalamin contains cyanide and is therefore not the best form of B12. It does cost less, and therefore it is most common form of B12 on the market

Balancing B12 and Folic acid. It is wise to supplement both vitamin B12 and folic acid at the same time. This will help avoid an imbalance between the two. What is the correct proportion? A good place to start your experimentation is with 2.5 times as much folic acid as hydroxycobalamin by weight. This is what Alan Vitinsky, MD has found works well for his patients. Since folic acid has a short half-life, it is best to take this mixture several times per day. You can get a compounding pharmacy to create separate liquids of these two vitamins. College Pharmacy carries it. (800) 888-9358 These can be sprayed in the nose or mouth. Another option is to get the hydroxycobalamin pills from Perque (www.perque.com and phone (800) 525-7372) and get the folic acid pills from your local health food store. Start with less, and work up to more. A lot is needed. For a 60 pound child, Dr. Vitinsky usually employs 2500 mcg folic acid with 1000 mcg pure hydroxycobalamin taken 3 to 4 times per day. However, start slow to give the body time to adjust.

DMG and TMG. (Dimethylglycine and Trimethylglycine.) These improve methylation in the body. Many have said that they improved language in their child. Some kids tolerate DMG but not TMG. Whichever one of these is used, it needs to be balanced with folic acid and vitamin B12. For each 125 mg pill of DMG, try using two 800 mcg pills of folic acid. Dr. Bernard Rimland has found that this is approximately the best ratio. If there is a poor reaction to DMG and TMG, consider starting with folic acid, B12 and niacinamide first.

B6 and coenzyme B6. This has proven to be one of the most important supplements for the autistic. A mixture of the two forms is often employed. However, you might check which is the best for your child. Often when there is yeast overgrowth, there is an impairment in the body's ability to create the active or coenzyme form of B6. If you give the active form, it should not be at

the same time as other supplements. It is somewhat delicate. Also, when you first start the coenzyme B6, it should be given in the morning. Otherwise, for the first couple of weeks it might interfere with sleep. After that, you may be lucky and find that sleep is much better with the coenzyme B6. Like everything else, you can get too much. Coenzyme B6 will interfere with the PST enzyme, which is often weak in autism. Too much ordinary B6 can take up the receptors meant for coenzyme B6 and cause nerve problems. In this sense, the coenzyme B6 is a much better product. If there is a poor reaction to both B6 and coenzyme B6, consider trying folic acid and B12 first. Also, you may wish to try using more magnesium before attempting the B6 again.

Hormones

Thyroid. About a third of the autistic have central hypothyroidism. This type of hypothyroidism is not detected by the usual blood tests. A TRH test taken in the evening may find it. However, this special test itself may cause temporary regression. The injected TRH may stress the pituitary. Instead of resorting to this test, it may be prudent to get a diagnosis based on symptoms.

Once you have the diagnosis, then you need to decide what type of thyroid hormone replacement to use. Although many conventional doctors have been trained to use a T4 thyroid supplement, the alternative community has found that the natural thyroid supplements usually work better. (Several of the Health Forum books talk a lot more about the thyroid issue. Or look up some of the information on thyroid at the about.com website and get some of the Broda Barnes Foundation tapes.) **Thyroid supplements should not be given if the adrenals are weak and have not been supported yet.** Thyroid supplements should be started at a low dose and gradually increased. When using natural thyroid or T4 thyroid, the dose should not be increased more often than once every two weeks. It takes several weeks for the dose to build up in the body. Observe reactions carefully. After being on a natural thyroid supplement for a while, consider adding in a T3 thyroid supplement. Sometimes this is helpful.

Adrenals. If the blood pressure is below 100 systolic (the upper number), then this is a very strong indication that the adrenals need help. More salt and water may help bring up the blood volume and resolve a low blood pressure issue. However, the adrenals can be weak even if the blood pressure is normal or high. There are lots of supplements that might be helpful for the adrenals. These are salt, sugar, pantethine, vitamin C, dried adrenal, B vitamins, phosphatidylserine, pregnenolone, progesterone and taurine. However, no supplement is perfect. Learn about the pros and cons of each.

Pregnenolone. Pregnenolone is good support for the whole body, but especially the adrenals. There is reason to believe that a pregnenolone supplement may be of help in autism. In autism, cholesterol, coenzyme Q10, thyroid and vitamin A are often in short supply. These are needed to form adequate pregnenolone. (Coenzyme Q10 is needed to create cholesterol. Vitamin A and thyroid are needed to form pregnenolone from cholesterol.) Patricia Kane has found that a small daily supplement of pregnenolone (25 mg) has helped some of the autistic.

However, before supplementing with pregnenolone, you should prepare the liver to handle this. The body uses pregnenolone to create hormones. With additional pregnenolone, more hormones can be made. The liver has to dispose of unneeded hormones. This is why you can't just give hormones and expect the body to handle them. It is important to support the liver's functions. Especially make sure that there are adequate sulfates available to handle the hormones.

Estrogen. This causes the retention of copper and the loss of zinc, folic acid, B12 and B6. Estrogen also suppresses thyroid. It suppresses the detoxification functions of the body. It can promote seizures. Avoid estrogen and estrogen mimics (pesticides, laquers, and phytoestrogens).

Amino Acids

Amino acids. These are the building block of protein. If the child does not tolerate protein, then don't start on a random supplementation of amino acids. It may lead to a dangerous build-up of ammonia. However, you can use certain amino acids to bring down ammonia. Consult with your doctor if there is an ammonia problem.

For a healthy body, the amino acids need to be kept in balance. Unfortunately, dysbiosis will alter the amino acid balance. An imbalance interferes with many functions of the body. When the amino acids are unbalanced, the body is forced to destroy some of the amino acids in order to create more balance. The destruction of these amino acids creates more ammonia. Ammonia is harmful to the body.

You can get both blood and urine tests for amino acids. If you can afford it, get both. A skillful interpretation of these results can be quite beneficial. However, use the results and recommendations as a general guide, not an absolute. This is not an exact science unto itself. Watch the reactions of the body.

Taurine. Taurine helps to prevent seizures. Taurine helps the body form bile. It also helps the cells detoxify. Sometimes taurine is elevated if the body isn't using it properly. If high, it is not prudent to add in more. However, for most of the autistic, the taurine levels are low. Yeast overgrowth depletes taurine. Unless instructed differently by your doctor, start with only a small amount of taurine (eg. 50 mg instead of 500 mg) and allow the body time to get used to this supplement. Give the taurine with a meal, because taurine will increase stomach acid secretion. Taurine will also alter the balance of intestinal flora, for better or worse. This is another reason to start with only a small amount. It is difficult to accurately measure taurine in the blood. You will find that the test results show a rather wide range of "normal" for taurine. Although the blood tests are helpful, you may have to place more emphasis on how the body reacts to this amino acid than on the blood tests.

Glycine. Glycine improves memory and learning. Glycine, has been found to protect against carcinogenesis, inflammation, fibrosis, neurological damage, seizures, shock, asthma, and hypertension. However, glycine will alter the balance of bacteria growing in the intestines. This may or may not be advantageous. Although generally a very good supplement, always observe reactions. This supplement is not a sugar, but it is very sweet. You may want to get the loose powder and use a teaspoon as a sweetener on food.

Glutathione. This is a tri-peptide consisting of three amino acids --- glycine, cysteine and glutamic acid. It will break down into these separate amino acids when it comes in contact with stomach acid. Therefore, it may be best to get a nasal or mouth spray of glutathione or a skin cream. Glutathione is an anti-oxidant that helps protect the nervous system. Having enough glutathione is particularly important when mercury is being chelated or moved around in the body. To increase glutathione levels, Dr. Jill James (Arkansas Children's Hospital Research Institute) has found that it is very important to support sulfur chemistry with things like folic acid, B12 and TMG.

Many people suggest taking cysteine to increase glutathione. Although cysteine is often the limiting nutrient in the creation of glutathione, supplements of cysteine can be a mistake. Cysteine should not be supplemented when copper levels are high. Also, sometimes there are high levels of cysteine in the mercury poisoned. The levels should be measured before considering a supplement of cysteine. If cysteine levels are low, then undenatured whey is a good source of cysteine. Undenatured whey will also increase levels of glutathione.

AKG or Alpha ketoglutaric acid. This is lowered by the yeast toxin acetylaldehyde. AKG is crucial to energy production and it is needed to remove ammonia. OKG is another substance that is often recommended to help with the removal of ammonia. OKG is a mixture of ornithine and alpha ketoglutaric acid. Even though it is very important to remove ammonia, it is also important not to get too much AKG. AKG is closely related to the excitotoxic glutamate.

Glutamine. This amino acid is often recommended to help heal the intestines. Yet, not everyone will tolerate glutamine. In the intestines, glutamine converts to glutamate and releases ammonia. Ammonia interferes with sleep and interferes with cellular energy production. The extra ammonia is one reason that glutamine might not be tolerated. Glutamine can also cause constipation. Glutamine can lower taurine. This reduction of taurine is not good. Taurine is very important for the body and a taurine deficiency is common in autism. Therefore, you might want to consider correcting a taurine deficiency before experimenting with glutamine. Also, perhaps take some more taurine when using the glutamine. It is usually better to wait until most of the dysbiosis (poor gut flora) is gone before trying glutamine. Otherwise, some bacteria may convert glutamine into unwanted substances.

There is a new glutamine product that may be better tolerated. It is Perque's Endura Guard. www.perque.com phone (800) 525-7372 It is a mixture of glutamine and PAK. (PAK is a mixture of B6 and alpha ketoglutaric acid.) The PAK in this product helps recycle the glutamine. Therefore less glutamine will be needed to achieve therapeutic goals. Also, compared to other glutamine products, there should not be as much build up of the excitotoxic glutamate.

Tryptophan and 5-HTP. Approach use with a great deal of caution. Although tryptophan is needed for muscle growth, those eating muscle meat are getting plenty. In fact, too much tryptophan can be quite a problem because it is antagonistic to thyroid function. If tryptophan measures low, you need to still be careful with supplementation. One of the reasons the tryptophan may be low is that bacteria are converting it into IAG, which is harmful. More tryptophan in the diet would only make this problem worse.

5-HTP is a form of tryptophan that is not converted into IAG. Yet, 5-HTP is not without its own problems. 5-HTP will increase serotonin, and in some circumstances, this can be quite harmful. In many cases of autism there is too much free serotonin. The same problem with free serotonin happens in fibromyalgia. The problem is examined in some detail in the 7th book of the Health Forum. The main idea can be found in a free excerpt from the Health Forum books at www.healthyawareness.net/forum/b.asp?m=22

Other Supplements

Colostrum. Colostrum is meant to be drunk, not swallowed in pills. Drink the colostrum or rub the powder on the inside of the mouth. Its immune modulating properties will be enhanced. Do the same with lactoferrin supplements. Use products that say the colostrum was gathered during the first 24 hours or less. Kirkman carries casein-free colostrum.

Monolaurin. This kills measles and Herpes viruses. There are many places to purchase this on the Internet. It tastes like soap. So find something to mask the taste.

Coenzyme Q10. There are brands of coenzyme Q10 that are very poor quality. Purchase yours from a source that you trust. Children with yeast overgrowth in the upper part of the bowel are more likely to be extremely depleted of this vitamin. This is because the yeast get to this nutrient first and convert the coenzyme Q10 into a form that the body cannot use. Children with failure to thrive (they stop growing), are fairly likely to have yeast in the upper part of the small intestine. In this case, antifungals may have to be employed while giving relatively large doses of coenzyme Q10. In serious situations, intravenous coenzyme Q10 may need to be employed. If the fat-soluble form of coenzyme Q10 is not tolerated, you might get a gentler reaction by starting with the hydrosoluble or water-soluble form available from Country Life.

Fat-soluble vitamins. All the fat-soluble vitamins (A, D, E, K) have anti-inflammatory properties. These vitamins are often low in autism. In particular, vitamin A is very important for healthy intestines and flora. According to Dr. Lars Hanson, in rats, vitamin A deficiency causes *“a contaminated bowel syndrome, accompanied by a very abnormal immune response with IgE antibody formation to the bacteria, dyspagocytosis, increased translocation [leaky gut], and a number of other abnormalities, such as increased nitric oxide production.”* It is very important to get enough of these vitamins, however, you can get too much. If you don't have tests to guide you, taking an amount equivalent to the RDA is usually safe. You just need to make sure that this amount is getting absorbed.

Phosphatidylcholine. Phosphatidylcholine protects the liver, may help with hyperactivity and can help with general brain function.

Bioflavonoids. Be careful about using a supplement of these. It might not be healthy for your child. Your child may already be getting enough bioflavonoids in their regular diet. Quercetin, rutin, and other bioflavonoids suppress the detoxification systems of the body. Bioflavonoids are polyphenols. Many of the autistic have trouble removing the phenols found in vegetable and fruit colors, food dyes, estrogen and bioflavonoids. One of the main reasons we are told to take bioflavonoids is that they are excellent antioxidants. However, one can take this too far. Bioflavonoids aren't always antioxidants. For example: a little of the bioflavonoid called quercetin has anti-oxidant properties, but a lot has oxidant properties.

Carotene. Carotene is not a good substitute for vitamin A. Children often have a problem converting carotene into vitamin A. Also, anyone with liver or thyroid problems are likely to have a problem converting carotene into vitamin A. Carotene can displace vitamin A by competing for vitamin A receptors.

Vitamin B5. This B vitamin is important to the autistic. It helps the body create coenzyme A. Coenzyme A is depleted by exposure to yeast toxins. (I know this is confusing, but coenzyme A is not related to vitamin A.) Vitamin B5 also facilitates the creation of an important neurotransmitter called acetylcholine. There are two different forms of B5 that you will want to know about --- pantothenic acid and pantothenine. Vitamin B5 is officially pantothenic acid. Its coenzyme form is called pantothenine. Pantothenine will help create taurine, whereas, pantothenic acid does not. Taurine is often low in the autistic. Therefore pantothenine may be a better choice.

Biotin. This B vitamin is manufactured by good bacteria. It is a sulfur containing B vitamin. When there is dysbiosis (poor intestinal flora) the body can become depleted of this B vitamin.

Unfortunately, biotin may encourage the growth of yeast. So it might be prudent to first lower the yeast growth in the intestines before starting on an oral supplement of this vitamin. Biotin should be taken with a supplement of another B vitamin called inositol; otherwise the biotin is hard on the liver. To use biotin properly, more pantethine may be needed. However, biotin competes for transport with pantethine. Therefore, to improve absorption, it may be best to take the biotin at a different meal than the pantethine supplement.

Vitamin C. What little research that has been done on autism and vitamin C suggests that large amounts could be helpful. See these articles by Bernard Rimland. www.autisme.net/vitaminc-uk.html and www.autisme.net/dosage-uk.html If you are in the habit of giving large amounts of vitamin C, you may get a rebound effect if you skip a day. The body will act as if it is lacking vitamin C. Therefore, if you decide to stop, do so gradually.

Very large amounts of ordinary vitamin C will cause diarrhea (eg, 15 grams or more). The threshold at which this occurs is different for each person. In fact, some people determine the dose they take by giving enough vitamin C to cause diarrhea and then back down until the diarrhea stops. However, these huge amounts of vitamin C aren't proportional to how much is being absorbed. Absorption falls off very dramatically with higher doses. There is a marked reduction after a mere 100 mg per day.

A much higher proportion of the vitamin C will be absorbed if you give smaller amounts distributed throughout the day. Another way to improve absorption is to encapsulate the vitamin C inside micro droplets of essential phospholipids. There are a few companies that sell this. BioImmune calls their product Ultra Absorbic-C. (This product also contains a little lipoic acid and magnesium.) The BioImmune website is www.BioImmune.com and their phone is (888) 663-8844. Here is another company, International Research and Development, Inc. They have two vitamin C products with the phospholipids. Inquire as to the differences and price. Their website is www.irdcorp.net and their phone is 928-536-7646. (They also carry a glutathione product with phospholipids.)

Read labels carefully. Sometimes vitamin labels will say they are hypoallergenic even though they are made from corn. Be careful if you decide to use Ester C products. Most of these contain a lot of bioflavonoids. Vitamin C products that are meant to be used in high doses will often be packaged with bicarbonates. There may be enough bicarbonates in these to affect stomach acid levels. Therefore, it is probably best to use these bicarbonate products in-between meals, or at least an hour or two after a meal.

For optimum benefit to the body, vitamin C should be kept in balance with other elemental reducing agents like coenzyme Q10, vitamin E and glutathione. Therefore, bring these nutrient levels up at the same time as you increase vitamin C.

Secretin. This is a hormone made by the cells lining the small intestine. Some of the autistic children improve significantly when given natural secretin. For the vast majority of children, there have been no adverse effects, although increased hyperactivity is to be expected for a while after the infusion. Unfortunately, there have been a couple of children who suffered seizures from the infusions. Perhaps the amount of secretin was too much for that child. Instead of infusions, DMSO can be used to bring the secretin into the bloodstream from a topical application. The best amount of secretin applied needs to be determined for each child — not too much and not too little. Instead of purse secretin, some people are using about a teaspoon of duodenum after meals. Duodenum is a naturally occurring source of secretin and other components of the small intestine. See www.krysalis.com Another option is homeopathic

secretin. With this, it may take several weeks for the changes to become apparent. Since there is such a tiny amount of secretin in this homeopathic medication, it should be a pretty safe treatment. Homeopathic secretin is available from Ainsworths Homoeopathic Pharmacy, 36 New Cavendish Street, London W1M 7LH. Telephone 0171-935 5330, fax 0171-486 4313. E-mail Ainshom@msn.com

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