

DEAR READERS



As many of you are aware I have been studying very hard over the past 2 years to obtain a degree in Clinical Nutrition in order to open an autism treatment clinic.

I have passed my second year Clinical Nutrition Exams and shall obtain my certificate to practice at the end of October 2005.

The Autism File Clinic will be the first in this country to help treat autistic children holistically and individually.

The emphasis will be placed on specificity and detail, an approach that thoroughly investigates the physiological, medical and biochemical history of each child and their genetic predisposition.

Information gathering is essential. I need to learn and understand as much about the child as possible.

Looking at the child in a unique and detailed way will pave the way for a much more specific treatment protocol and help outline the possible use for diagnostic testing.

I am a great believer that autism is a treatable condition in many sufferers and it is the biochemical imbalance that initiates and controls their autistic behaviours.

For those sufferers who "acquired" autism it is not genetic, it may be predisposed but have the triggers been identified? NO!

We hear of the links between autism and vaccination, autism and heavy metals, autism and immune incompetence, autism and allergies, autism and toxicity, autism and inflammation, autism and gut problems so which one is it? Who understands its true aetiology?

As an example, If your child was born with a normal apgar rating and experienced a normal birth and developed normally but then responded to vaccinations and later developed glue ear/respiratory tract problems which were treated with copious courses of antibiotics then to me a number of issues would immediately spring to mind:

1. Immune incompetence
2. Inflammation
3. Gut dysbiosis
4. Poor digestion and absorption
5. Leaky gut
6. Food intolerances or allergies?
7. Heavy metal toxicity?

These seven problems can therefore be put under all of the possible reasons why autism occurs. But they all exist within the same child. It is multi-factorial and therefore needs to be addressed as such.

The possibility of these could be looked into with the use of questionnaires and diagnostic tests such as the Comprehensive Digestive Stool Analysis with parasitology, a "leaky gut" test, hair analysis, the diet and the relevance of opioid peptides, gastrointestinal disturbances such as inflammatory markers and Secretory IgA, stool abnormalities such as the level of digestion, the identification of allergenic proteins derived from poor digestion and early absorption of protein fragments through the gut wall and the relevance of such disturbances on autistic behaviour, sleep patterns, altered gut movements, mood swings, learning abilities, poor weight gain and so on.

In the clinic I may decide to prescribe diagnostic tests to look into such areas but will explain why the test may be necessary, what the expected results may show, how you should take the samples and at what cost. This more detailed research approach will help build a more specific protocol for your child. Your child is a unique individual diagnosed under the same diagnostic umbrella as many other autistic children but exhibiting completely different "biochemical" disturbances.

Children are diagnosed as autistic by displaying similar disturbances in speech, social interaction, imaginative play, perception of language and so on but the so

called experts are finding it problematical to categorise our children based upon biochemical imbalances. This I feel is extremely important and may shine a new light on the treatment protocols put in place for our children, outside the realms of educational, medical and psychological interventions.

Mend the engine first or it wont drive.

It is very easy to see the interaction between the brain and the gut. If I was to drink a large amount of alcohol then after a time my brain function would be altered by the drug, if I was to have a leaky gut and absorbed opioid peptides then this would also alter brain function, if I was to consume quantities of additives, preservatives then my brain function would also change. They are now linking the consumption of aspartame mainly in fizzy drinks with schizophrenia so it is the very functioning of the gut and its integrity that may play a pivotal role in the aetiology of autism.

The aetiology of autism is still a baffling subject and one that will not be answered in the near future. It is important to dig deep and uncover the problematical areas and treat wherever possible. Our children may seem absolutely fine on the outside, o.k they may be a little pale, they may be underweight, they may have dark eye circles and they may have the odd bit of eczema. Underneath the skins surface they may be experiencing many problems all of which interact and snowball to create autism, this is where we need to start looking.

It is also vitally important to look at their genetic makeup, their blue print taken from you, their parents and their grandparents and to assess whether there may be some genetic predisposition. Perhaps the parents have a number of inflammatory problems, allergenic responses, eczema, psoriasis, mental health issues and such like. It will be interesting to see if we are all engineers or MENSA boffins as one of the broad sheets expressed a couple of weeks ago!

Pregnancy and birth problems must also be discussed, your childs first year, their developmental records, the vaccinations

THE Autism FILE



C L I N I C

IN A NUTSHELL HOW WILL THE CLINIC WORK?

- | | | |
|-------------|---|--|
| STEP | 1 | Telephone or e-mail the office to book an appointment time. |
| STEP | 2 | I shall then confirm the appointment time and date in writing and with the letter of confirmation send an extensive questionnaire for you to complete and return to me via post with any diagnostic test results TWO WEEKS PRIOR to our consultation. Details will also be provided on locality and contact numbers for you to use. |
| STEP | 3 | During the two weeks prior to your appointment I shall have studied all of the information sent to me and will have highlighted areas to further discuss. With your consent I may have to contact you, your child's GP or diagnostic laboratory if I require further information about your child, such as medication or results obtained from the tests. I shall be looking to dedicate 2 hours to complete this stage. |
| STEP | 4 | The initial consultation will be held within the clinic. This will be based from home and will be very child friendly, offering space to play outside in the garden, on the trampoline, swings and slide. There will be a Playstation, DVD Player, Video Player T.V and a selection of toys for your child to use. (Please bring their favourites to keep them amused during our discussions). This will create a more relaxed atmosphere for you and your child and hopefully allow us the time to discuss your child knowing that they will be happy in a homely atmosphere. It will be autistic friendly. |

they received and if there were any reactions, the diet and foods that are regularly consumed and the variety of foods, the use of medications and for what illness or problem and whether they had a beneficial effect. The functioning of the bowel, reflux, sleep disturbances, socially interactive, weight loss, pointing, when the first spoken words appeared, crawling, walking and dyspraxia, the second year, the MMR, when the identification of "something is wrong" occurred and whether this was influenced by any triggers.

Discussions with you, the parents will help paint a clear picture into the life of your child and help me better understand the possible reasons for their condition.

I have an autistic child and have, through experience, grown to better understand

some of the possible problems Billy has with autism and appreciate how these problems exist. Through dedication, patience, understanding and experimentation I have found that treating the many disturbances has enabled Billy to flourish and without question achieved so much more than if left alone with no interventions.

It will be my role as a practitioner to acquire as much detailed information as possible in order to develop a very specific protocol for your child. This is rarely done in many practices and due to autism being a multifactorial disorder is so very important.

There is no single cure.

The identification of the problems, assessing the interaction between them and

delivering a programme designed to deal with the problems identified is the way forward.

I shall also use this time to observe your child. I am dedicating one and a half hours for this consultation which is an extension of 30 minutes above an average consultation. This is critically important as a great deal has to be discussed and understood within this session. During the final 30 minutes a treatment protocol will be completed for your child. This will be based upon all of the information gathered from yourselves, your child, the questionnaires and any diagnostic tests completed.

If distance from the clinic is a major problem and/or your child cannot travel then I am prepared to offer a telephone consultation if you prefer.

I shall be realistic yet structured in my approach and will take into consideration dietary structure i.e what your child eats, what will your child eat, how to manage the introduction of new foods and where to purchase them from. The selection of supplements, where to order them from, when to give them to your child, in what form e.g capsule, tablet, powder, liquid, how to administer the supplements and the costs.

Diagnostic tests may be discussed, their relevance to your child, the costs, where to order the test kits from (if I haven't got them in stock) and whether they are intrusive or not. If a blood test is required I shall of course discuss these in more detail as some children may not be prepared to offer their blood voluntarily. As many of you are aware, diagnostic tests and supplements are not cheap so I shall select only the most essential for your child and will not be prescribing diagnostic tests unless they are vitally important and specific to your child.

If tests are ordered then a follow up consultation will be booked in 4 weeks after

the tests have been given. This will give ample time for the samples to be collected and posted and for the results to be sent back to myself for interpretation. These may influence the initial treatment protocol given and therefore a discussion about the results and any changes to the protocol must be explained and understood. This consultation may be conducted over the telephone, the decision will be yours. The time allocated will be either 30 minutes or one hour and a date and time for you to call will be given.

Following our time together you may have more questions for me. I shall be offering an opportunity for you to ask me these questions during a 1 hour "open clinic" telephone consultation I shall host twice a week. Alternatively you can e-mail your questions to me at info@autismfile.com. Please be patient if you cannot get through. I shall try and answer as many of your calls as possible and will therefore need to be brief.

I have a number of individuals already on my waiting list so I must also apologise in

advance if you cannot be seen immediately.

I shall also be co-ordinating conferences and lectures throughout the U.K in 2006 and shall keep you posted through The Autism File.

"As part of my post graduate clinical degree I have been asked to complete a video of myself conducting a seminar on what I am intending to practice within my clinic I would like to address, "The biochemical disturbances in autism, its plausible aetiology, identification of biochemical disturbances and the treatments available". If any groups of parents would like me to host such a seminar in their area please contact myself at The Autism File to discuss.

There are many desperate autistic children who need help - you be their guiding light.

Good luck with all of your endeavours.



INTRODUCTION

Why I shall look to use diagnostic tests in practice?

In recent years there has been a significant shift in the type of treatment protocols offered by the medical/nutritional profession in the treatment of autistic spectrum disorders (ASD). Important to this has been the growing acceptance of clinical laboratory testing, which for many carers and children have become integral to the bettering and in many cases the successful treatment of ASD.

The application of clinical laboratory testing is supported by an ever growing database of high quality, scientific evidence and hundreds of case studies, which repeatedly point to the therapeutic value of applying clinical laboratory testing as part of a programme of nutritional intervention.

With reference to testing it is extremely important to look at the aetiology of autism and to keep up to date with the very latest research findings and therapeutic advances in its treatment.

I have been very fortunate in having an autistic child myself and through his treatment over the past five years have formed a very close association with a number of highly respected individuals and associations working within this fascinating field. Having completed my certificate to practice from the Institute of Optimum Nutrition I am ready to help you.

The Autism File Clinics primary goal is to help treat children suffering from autism. My son has given me the inspiration, enthusiasm and motivation to progress with his development and I feel it is time I looked to help other sufferers.

I believe diagnostic testing, evaluation, interpretation and unique, specific treatment protocols will prove highly beneficial in furthering the understanding and treatment of this multi-factorial and highly complex disorder in the future.

THE Autism FILE

C L I N I C

Diagnostic Tests for Autistic Spectrum Disorders



INTESTINAL PERMEABILITY

Supplier: LWDL

Test name: Gut Permeability

Urine sample following swallowing of sugar solution

Cost: RRP £90.

Sample Requirements: Urine

Associated tests: Allergies (fact), Detoxification, CDSA2 with parasitology, digestion, Calprotectin, Organix.

The concept of intestinal permeability is key to many theories of autism such as autoimmune dysfunction, food allergies, gastrointestinal imbalances, bacterial and fungal overgrowth, deficient secretory IgA, malnutrition, calprotectin and other inflammatory markers, excess mucosal secretions with stools, diarrhoea, constipation, poor digestion, damage to microvilli, hypokalemia (lack of potassium), opioid peptides affecting Hcl production (deactivates zinc bearing enzyme that makes HCL) poor secretin release and increased systemic toxins.

Paediatric specialists in Rome demonstrated that 43% of autistic children had increased permeability. Intestinal hyperpermeability or 'leaky gut syndrome' is a condition whereby the lining of the digestive tract becomes damaged, allowing the contents of the gut to become absorbed too easily. In many cases, permeability to small molecules, such as vitamins and minerals is decreased, while permeability to large molecules, including undigested food or toxins increases.

These larger particles, if absorbed, directly trigger immune reactions including food allergies and intolerances. Enhanced uptake of toxic compounds can overwhelm the liver's detoxification system as well as lead to an overly sensitised immune system. A leaky gut often manifests itself in autistic children as dysbiosis, food intolerances, opioid intoxication (most frequently from casein and gluten).

Intestinal permeability can be induced by many causes

including antibiotic usage, NSAID,s, enzyme deficiencies, mould and fungal mycotoxins and poor diet.

The test involves swallowing a solution of mannitol and lactulose and taking urine samples can be a critical tool for developing holistic intervention strategies to treat autism.

References:

- 1.Horvath et al. 1999. J.Pediatrics. Gastrointestinal abnormalities in children with autistic disorder.
- 2.Wecker.L.et al 1985. Trace element conc in hair from autistic children. J ment Def Res 29;15-22
- 3.D'Eufemia 1996. Abnormal intestinal permeability in children with autism. Acta Pead . 85 (9) 1076-9.



DETOXIFICATION PROFILE

Supplier: IVDL

Test name: Detoxification Capacity Profile

Cost: £140 RRP.

Sample Requirements: FMU, 2XSS

Associated tests: Leaky Gut, Sulphite/Sulphate, D-Glutaric Acid, Organix, Metallothionein Deficiencies, CDSA2 + Parasitology

Autistic children have been found to have a much poorer ability to detoxify them selves. This may be due to an uncertain aetiology but it is known that toxic exposure is increased to autistics due to increased intestinal permeability, sulfation and phenosulphotransferase deficiencies (poor phase 2 detoxification), constipation leading to greater intestinal toxin exposure and absorption.

Lack of antioxidants due to poor digestion and food selectivity, problems with certain food phenylcompounds (detoxed by phase 2 pathway),

The liver is the organ, which is mostly responsible for cleansing the body. It performs a process known collectively as 'detoxification' whereby toxic products are

broken down and eliminated from the body. However, these pathways work in a delicate balance and are frequently overwhelmed, allowing many noxious substances to accumulate.

The Pfeiffer Institute has also identified that 95% of the autistic children examined had a metallothionein deficiencies making the transportation of toxic heavy metals very difficult.

References:

- 1 Alberti et al 1999 Sulphation deficit in low functioning autistic children. *Biol Psychiatry* 46 (3) 420-4.
- 2.Shannon, Graef 1996 Lead intoxicification in children with pervasive development disorders. *J Tox* 34(2) 177-181.
- 3.Holmes. 2003.Reduced mercury levels in first baby haircuts of autistic children. *Int J tox Jul/Aug ;22(4) 277-85.*



FOOD ALLERGY/ INTOLERANCES PANEL

Supplier: IVDL

Cost: RRP £245

Test name: FACTest

Sample requirements: 2 x EDTA (fasting)

Associated tests: Intestinal permeability, digestive profiles, urinary peptides, amino acids analysis, CDSA2 + Parasitology, calprotectin.

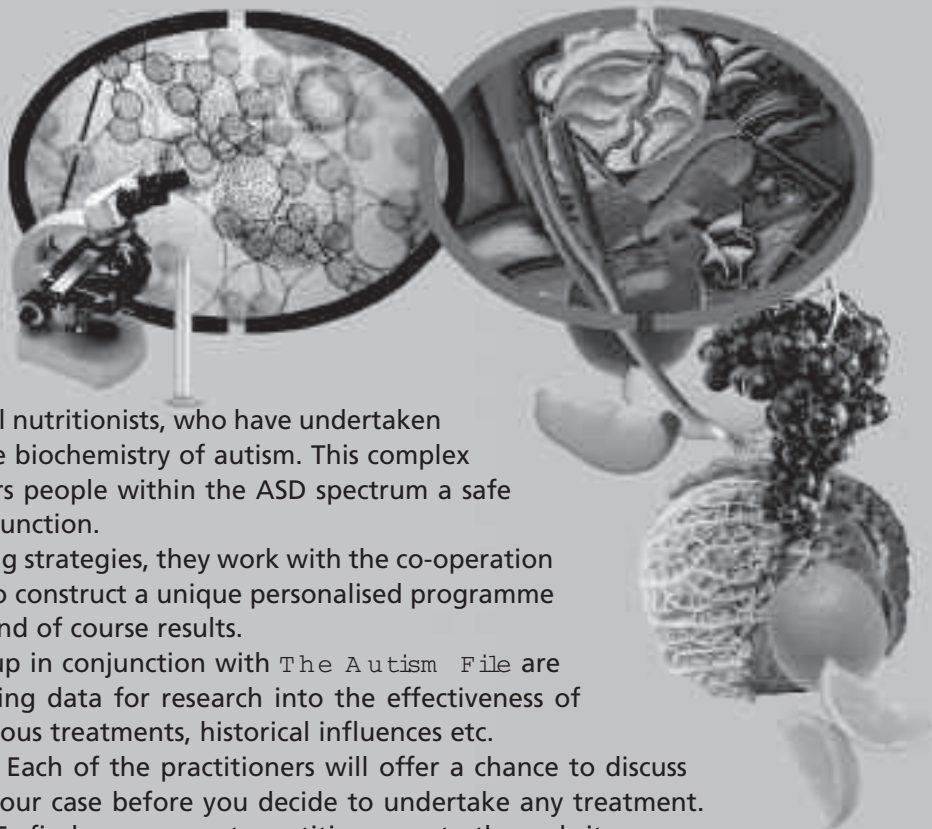
Millman and colleagues published Allergy and learning disabilities in children in *Annals of Allergy* in March 1976 (36.3.149-160) and found the greater the number of allergies the lower the IQ score. The *Lancet* published a paper in March 1985 540-545 by Egger et al finding that 72 children treated with an Oligoantigenic diet improved the IQ and behaviour in 62 of the control children.

Nutritional factors such as allergy, bloating, diarrhea,

Practitioners

Nutri-Link

Linking Science & Nutrition



Nutri-Link Practitioners are clinical nutritionists, who have undertaken extensive post graduate training in the biochemistry of autism. This complex and often confusing area of treatment offers people within the ASD spectrum a safe opportunity for improving their health and function.

Using well established and ground-breaking strategies, they work with the co-operation of the parents and the individual with ASD to construct a unique personalised programme based on history, lab tests and of course results.

The group in conjunction with *The Autism File* are collecting data for research into the effectiveness of various treatments, historical influences etc.

Each of the practitioners will offer a chance to discuss your case before you decide to undertake any treatment. To find your nearest practitioner go to the website .

www.autismfile.com/nutrilink.htm

Tel: 01626 205417 Fax: 01626 205418

Reprinted with permission from *The Autism File*. info@autismfile.com.



constipation, frequent infections, TH2 dominance, irritability, eczema, itching, skin rashes, hyperactivity, inability to concentrate, sensitivity to additives, cravings for refined sugars and fatty acid disturbances have all been linked to autistic spectrum disorders. Dietary modification may therefore play a major role in the management of this disorder.

The body may react to food in many different ways, and this has been the cause of much controversy about what does and does not constitute food allergy. Food allergy is probably best defined as an abnormal immunological reaction to food. This means that if an individual is exposed to a food that they are allergic to, an immune response occurs which can be measured in the blood. Such a response is swift, clearly defined and is invariably reproducible. It classically involves the production of special antibodies to foods called IgE.

Food intolerance is also an adverse reaction to a specific food or food ingredient which is not psychologically based. However, food intolerance is not necessarily associated with clearly defined immune reactions in the same way as food allergy, and may involve a number of different reactions. It has been shown, for example, that IgE and other types of antibodies are found in the wall of the gut and cause the release of histamine. This has the effect of altering the permeability of the gut to a wide variety of substances, making it more 'leaky'. As a consequence food can be absorbed when it has only been partly digested, so large and unusual food molecules may actually get into the blood stream. These can then trigger a number of immune responses, including inflammatory and auto-immune reactions, which release different hormone-like substances called cytokines.

These chemicals themselves are the cause of many of the unpleasant symptoms seen in food intolerance. Most of the evidence suggests that food intolerances or sensitivities are influenced by our environment and our own dietary and medical practices. They are clearly a series of complex immune reactions, the detection of which needs a specialised test such as the FACT test. This test is a cellular assay that measures the release of chemical mediators from white blood cells once they have been stimulated and incubated with foods, detecting a much wider range of food intolerances and sensitivities than is possible by conventional means.



URINARY PEPTIDES

Supplier: University of Sunderland

Test: Urinary peptides

Cost: £50.00

Associated tests: Intestinal permeability, FACTest, allergy pulse test (home test)

Peptides are derived from an incomplete breakdown of certain foods and, in particular, gluten from wheat and some other cereals such as barley, rye and oats and from casein from milk and dairy produce. These peptides result in effects which are basically opioid in nature and that they may either, themselves, have direct opioid activity or that they may form ligands for the enzymes which would break down the opioid peptides which occur naturally within the CNS. In either case, the consequence would be the same. The CNS neuroregulatory role, which is normally performed by the natural opioid peptides such as the enkephalins and endorphins, would be intensified to such an extent that normal processes within the CNS would be severely disrupted.

Kidd.P.M 2003 "Autism, an extreme challenge to integrative medicine. Part 2. Alternative Medicine review Dec 7 (6) 472-499. noted, "Dietary restrictions, including the removal of milk and other casein dairy products, wheat and other gluten sources, sugar, chocolate, preservatives, and food colouring are beneficial and prerequisite to benefit from other interventions".

Autistics are known to have poor digestive enzymes, namely DPP1V brush border enzymes, increased intestinal permeability, gut dysbiosis and allergies. These in turn may increase inflammatory responses in these children which may have a direct relationship on brain functionality and behaviour.

Jyonouchi and Itokazu. 2002 Neuropsychobiology 46 (2):76-84. "Innate immunity associated with inflammatory responses and cytokine production against common dietary proteins in patients with autism spectrum disorder."

They found common allergens to gliadin, casein and soy in autistic sufferers compared to normal controls.





CANDIDA ANTIBODY PROFILE

Supplier: IWDL

Test: Candida antibody Profile

Cost: RRP £70

Sample requirements: Saliva

Associated tests: Organix, CDSA2

+parasitology.Intestinal Permeabilityadrenal stress profile (adrenal papillary home test).

Many autistic children have a chronic overgrowth of yeast. This may be caused predominantly by multiple courses of antibiotic therapy for repeated chest infections and otitis media. Subsequently gut dysbiosis occurs, increased the prevalence of intestinal permeability (allergies) and the proliferation of candida.

Many autistic children have elevated adrenal output and hypersensitivities. Cortisol can increase the proliferation of candida sp.

Candida enzymes such as phospholipase A2, catalase, alkaline phosphatases, coagulase, keratinase and secretory aspartate protease can actually digest the gastrointestinal mucosa.

If candida has become pathogenic i.e disease causing, it will elicit an immune response leading to the production of elevated levels of specific antibodies to candida. From saliva both IgA and IgG antibodies to candida can be used to look at an ongoing current infection or past.



SECRETORY IMMUNOGLOBULIN A (SI gA)

Supplier: IWDL

Test: Secretory immunoglobulin A (SIgA).

Cost: £60 RRP

Sample requirements: SS

Associated tests: Candida antibody test

Imbalanced Secretory IgA (SIgA) may provide the link between gut imbalances and systemic illness. SIgA is found in saliva in the mouth, throughout the gastrointestinal tract and in mucous secretions throughout the body. SIgA provides our first line of defence against bacteria, food residues, fungi, parasites and viruses. However, deficiency of SIgA is the most common immunodeficiency.

Low levels make us more susceptible to infection and may be a fundamental cause of asthma, autoimmune conditions, Coeliac Disease, chronic infections, Crohns Disease, candidiasis, food intolerances, allergies, autism and other behavioural problems. Very high levels are found in people who have chronic infections and whose immune system is overloaded/hypersensitive. Lifestyle, stress and nutritional factors can all influence SIgA levels.



ESSENTIAL FATTY ACIDS

Supplier: IWDL

Test: Fatty acids screen

Cost: £220 RRP

Sample requirements: 1 x EDTA

Associated tests: Detoxification profiles.

Essential fatty acids which are vital for cell membrane structure (flexibility and fluidity), behaviour and signalling. Disrupted cellular communication and "the degree" of membrane traffic will affect cellular, tissue and organ function.

Fats are also the raw material for the formation of eicosanoids and prostaglandins. Both of which play important roles in inflammation whether they up regulate the inflammatory pathway or down regulate the

inflammatory pathway.

Autistic children in a study conducted by Vancassel found that they have 20% the levels of omega 3 fats than the control group.

Similar findings have been reported in other neurological and psychiatric behaviours such as schizophrenia and Retts syndrome.

Dr Patricia Kane has also identified that autistic children have deranged fatty acids and aberrant ratios. The effect of which is to compromise all aspects of their cellular functioning and adversely impact on their recovery.

Dietary selection, poor digestion and damage to fats due to oxidative toxins and inflammatory chemicals may have altered these sufficiently to disturb cellular membrane structure and function. Toxins as biotoxins and neurotoxins as well as a disordered common mucosal immunity amongst autistic children could present a case for further exploration and intervention.

Red Cell lipid membrane analysis looks at a number of areas that include the accumulation of very long chain fatty acids in the membrane which is indicative of suppressed peroxisomal beta oxidation and liver P450 enzyme activity and nitric oxide synthase,(NOS). B12 and Glutathione are important regulators of Nitric oxide and therefore may directly affect membrane integrity and structure. The higher the VLCFAcids the greater the degree of toxicity and poor detoxification.

Children with Autistic Spectrum Disorders are often acidic which upregulates the activity of beta oxidation and concurrently the burning off of essential fatty acids.

It is vital that this balance of fats and toxins is identified as membrane structure and function will determine biochemical status and overall health and function within each cell of the human body.



COMPREHENSIVE DIGESTIVE STOOL ANALYSIS 2 + PARASITOLOGY

Supplier: IVDL

Test: Comprehensive digestive stool analysis 2 with parasitology.

Cost: £220 RRP

Sample requirements: Stool

Associated tests: Intestinal permeability, amino acid profile, lipid profile, calprotectin.



The ability to digest and absorb nutrients from our food is essential. Poor digestion and malabsorption of vital nutrients can contribute to problems with degenerative diseases, compromised immune status, and deficiency states caused by inadequate minerals, vitamins, carbohydrates, fats and amino acids.

The gastrointestinal tract must also eliminate undigested food residues and toxins, and maintain a sensitive balance of beneficial microorganisms. Any imbalances in these processes can impact on wide-reaching bodily process including hepatic, neurological, immunological, musculoskeletal, and other vital body organ functions. Signs and symptoms of systemic inflammation may originate from dysfunction within the gastrointestinal tract

This is one of the most important areas of concern for an autistic child. There is a growing list of abnormalities associated with the gastrointestinal tract and its interaction with both the immune system and the function of the brain.

Known digestive problems (HCl deficiencies, digestive enzyme deficiency esp DPP1V) and stool abnormalities(light, frothy, diarrhoea, constipation, bile insufficiency) may be present in a large portion of children with autism. Many autistic children display dysbiosis, candidiasis, endogenous toxicity, parasitic, viral, fungal and anaerobic pathogenic bacteria esp clostridia, staphylococci, vibrionaceae, sulphate reducing bacteria and E.coli sp. Digestion of foods is impaired due in part to secretin and Cholecystokinin (CCK) deficiencies, abnormal pH, low levels of short chain fatty acids, putrefaction and fermentation markers high, elevated ammonia levels, inflammation (lymphoid nodular hyperplasia) and elevated intestinal permeability. The digestion, absorption

and utilisation of amino acids, essential fatty acids and carbohydrates plus vitamins, minerals and trace elements are fundamental for optimum health and functionality. If this does not happen disease will be the outcome.

Associated problems such as irritability, jeckyl and hyde behaviour, aggression, headaches, eczema, food cravings, limited selection of foods, sleep disturbances, hypersensitivity, vomiting, dark circles beneath eyes, red earlobes/pink cheeks and chronic infections are mostly present in the majority.

Most of the above can lead to malnutrition and toxicity and can be explored using the comprehensive digestive stool analysis with parasitology. This test looks at microbial imbalances, candida, enzyme adequacy, scfa's, pH, immunological and inflammatory markers and absorption.

References:

1. Goodwin. 1971. Malabsorption and cerebral dysfunction: a multivariate and comparative study of autistic children. J Child psych. 1:48-62
2. Horvath 1999. Gastrointestinal abnormalities in children with autistic disorder. J Pead. 135:559-63
3. D'Eufemia et al. 1996. Abnormal intestinal permeability in children with autism.



ORGANIC ACID ANALYSIS

Supplier: IVDL (METAMETRIX)

Test: Organix

Cost: £220 retail.

Sample required: Urine.

Associated tests: CDSA2 + Parasitology

An important test assessing gastrointestinal function, neurotransmitter status and liver detoxification. It also analyses the need for antioxidants and vitamins.

Metabolism is the process in which your body converts the food you eat into energy and new structures. An individual's metabolism can be significantly influenced by various factors, such as inherited or acquired enzyme deficiencies, specific nutrient deficiencies, a build-up of toxic substances and drug effects.

This comprehensive analysis assesses fatty acid & glucose metabolism, B – complex functional vitamin markers, vitamin B12 and folic acid status, neurotransmitter metabolism and metabolites to assess CNS function, antioxidant markers, liver detoxification, and intestinal bacteria and yeasts.

The status of various other nutrients are also assessed in this analysis, including chromium, coenzyme Q10, magnesium, manganese, alpha-lipoic acid, arginine, carnitine, n-acetyl-cysteine, glutathione, tyrosine and tryptophan.

It also looks at mitochondrial energy production via krebs cycle deficiencies and excesses, methylation, intestinal dysbiosis, and gives an easy to follow supplementation recommendation based upon the results obtained from the sample.

Metametrix has been successful over the past 20 years and continuously invests funds and expertise in their testing. For example for the organix test they have replaced less accurate methods with more complex methods assuring reliability.



AMINO ACIDS ANALYSIS

Supplier: Diagnostic Services Ltd

Great smokies Lab

Test: Amino acid analysis

Cost: £219.00 RRP

Sample required: Urine.

Associated tests: sulphate/sulphite analysis.

Digestion of foods is fundamentally important when it comes to supplying the body with the form of nutrients that it can absorb and utilise as building blocks for anabolic and metabolic biochemical reactions within the body. Autistic sufferers have been shown to have digestive disturbances. These disturbances may play a major role in not supplying the body with nutrient forms that it can use.

Proteins are digested in the stomach and small intestine and if digestion is problematical proteins will not be absorbed as single amino acids.

This may lead to putrefaction in the bowel, an overgrowth of pathogenic bacterial species and possible disturbances in neurotransmitters e.g serotonin and elevated ammonia levels due to poor urea cycle function.

Phenylketonuria (PKU) may occur due to excess levels of phenylalanine and is common amongst some sub groups of autistic sufferers.

Dr Rosemary Waring at Birmingham University has completed many research papers on autistic controls and many have abnormalities with sulphur rich amino acids such as methionine, cysteine and taurine and these are extremely important in cellular structure, active transport, liver detoxification and providing free sulphate.

This test evaluates over 40 analytes and provides a customised supplement schedule with test results.

References:

Moreno-Fuenmayor H et al Plasma amino acids in autism. Invest clin 1996 37 (2):113-28
Lowe.TL. 1980. Detection of PKU in autistic and psychotic children .
JAMA 243 (2) 126-8.



KRYPTOPYRROLES

Supplier: ELN

Test: Kryptopyrrole

Cost: Eu 45

Sample Required: Urine

Associated tests: None

Kryptopyrroles are compounds that bind irreversibly to vitamin B6 and zinc, causing them to be excreted in the urine. If produced in large amounts, these otherwise harmless chemicals, can result in deficiencies of these essential nutrients.

Symptoms of elevated levels of kryptopyrroles can include mental health disorders such as acute stress/ anxiety, fatigue, depression, phobias, compulsions or addictions.

The Autism Research Institute of America have identified the importance of vit B6 supplementation in helping autistic sufferers.



SULPHUR METABOLITES

Supplier: ELN

Test: Sulphur Metabolites

Cost: Eu 125.

Sample Required: Urine.

Associated Tests: None.

This test determines sulphate wasting and presence of toxic metabolites; sulphites, thiosulphate and isothiocyanate. Phenosulphotransferase phase 2 detoxification enzymes are very important for detoxifying phenols and amines as well as food dyes and chemicals, all of which are highly acidic. There may be a lack of this

enzyme or an absence of sulphur carrying foods in the diet or an inability to metabolise sulphur into sulphate and all three are common in autistics. Sulphate also provides the sulphation of glucosaminoglycans (sulphated sugars) in the gut, if there is insufficient sulphate the under sulphated GAGs cause a thickening of the lining of the gut and is more vulnerable to infection. Waring et al.

Other associated problems attributable to PST/sulphate deficiency include poor metabolism of serotonin and dopamine, impaired breakdown of bile pigments bilirubin and biliverdin, impaired action of CCK reducing enzymic secretions from the pancreas and therefore affecting digestion.

Mercury and aluminium (elevated in many autistics) affect sulphite oxidase which reduces sulphate production.

It is important to include this test for the above associated sulphate/PST problems associated with autism. Symptoms include reddened ears, night sweats, dark eye circles, excessive thirst, facial flushing and odourous bed clothes.



ELEMENTAL HAIR ANALYSIS, TOXIC AND NUTRIENT ELEMENTS

Supplier: Diagnostic Services Ltd.

Great Smokies

Cost: RRP £52.88

Sample Required: Hair

Toxic element accumulation is likely in an environment plagued by pollutants. Toxic elements, many of which are metals, normally present in the body in small amounts. However they accumulate with excessive or continual exposure or if your body's detoxification systems are poor. An example of the need for assessing toxic metals include excess lead being associated with fatigue, constipation, insomnia, emotional disturbances, and learning disabilities in children.

Many elements are essential to life, assisting in the production of energy and other important biochemical processes. Element insufficiencies, excesses or imbalances can lead to illness. These elements are required for the body's structural tissues and for metabolic functions, particularly enzyme reactions. Deficiencies or imbalances among elements lead to health problems. Often referred to as minerals, the chemical elements are fundamental to every function in the body. They join together in crystalline

structures, forming bone. They shuttle independently across membranes, resulting in nerve impulses. They serve at the heart of most enzyme molecules to direct chemical reactions.

Some elements can accumulate in tissues causing toxic effects. Metal toxicity is a significant environmental health concern. A toxic load of the heavy metals lead, cadmium, mercury or arsenic is capable of rendering considerable damage to the brain and nervous system, particularly in children. Toxic elements produce their many negative effects through various mechanisms.

Autism, multi-factorial in its aetiology has been linked to ethyl mercury toxicity derived from Thiomersal in vaccines. Antimony and lead have also been linked with increased behaviour abnormalities and learning disabilities in children.

Magnesium, calcium, copper, zinc and chromium deficiencies may also be applicable to Autism. Magnesium and B6 supplementation has been an affective intervention covered by the Autism Research Institute in san Diego.

References:

- Wecker.L. Trace element concentrations in hair from autistic children. J Ment Def res 1985;15-22
- Tuthill.R 1996. Hair lead levels related to children

classroom attention deficit disorder. Arch environmental health 51(3)214-220.



OTHER TESTS NOT COVERED:

Heavy metal chelation test.

Chelating agents in my mind further affect detoxification mechanisms esp phase 1 liver enzyme function. DMSA can also lead to neutropenia, a deficiency in neutrophils, the very cells that kill pathogenic fungi. This in my opinion would further reduce the susceptible immune system which is already struggling to deal with fungal species esp candida in many autistics. Another chelating agent DMPS may also increase the dysfunction of sulphite oxidase. Rapid mobilization of heavy metals may also increase the bodys inability to dump these via the stool and urine. If bowels are constipated this would lead to greater reabsorption and circulation of these toxic metals.

DOING WHAT IS BEST FOR YOUR CHILD IS NOT ALWAYS EASY



We've all heard about the importance of the essential fatty acids **DHA & EPA** from fish oil for a child's brain development and visual function. It has been shown to help with behavioural problems, focus, mood, memory and learning.

How do you get your child to take fish oil? Simple...Nordic Naturals award winning Arctic Cod Liver Oil, available in unflavoured liquid and patented chewable natural fruit flavoured soft gels.

Kids call them a treat

Parents call them a triumph



"More please"



Nordic Naturals oils are doctor recommended, and used by leading research institutions. All Nordic-Naturals omega oils are independently tested to ensure the absence of environmental toxins.

Nutri-Link Ltd
Living Good & Wellbeing

For more information or to place an order, please call Nutri-Link at 01626 205424