

# L'Express



Quebec Autism Society  
Spring 2001

- ▶ **The most recent DAN conference held in San Diego, in September 2000**
- ▶ **Vaccination: latest developments**
- ▶ **A topic of special interest: parents of young Asperger patients tell their stories**

## AUTISM

Autism is a syndrome of symptoms manifested in behaviour. It is a serious developmental disorder in children, resulting in major deficits or deviations. Both social and emotional development are affected, as are communication, speech, imagination, and fields of activity and interests are seriously limited.

Autism is a relatively rare syndrome (10 to 15 children in 10,000) but it occurs in all parts of the world, in every population group and spares no economic sectors of society. However, it is far more prevalent in boys than in girls, with a ratio of three boys to one girl.

Causes of the disorder have not yet been identified. Fortunately, the old myth that attributed autism to inadequate relations between parents and children has now been discarded following recent research. Today, researchers focus more closely on etiological factors, such as genetic, biochemical, immune system deficiencies, as well as prenatal, birth and postnatal traumas.

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The Quebec Autism Society was  
founded in 1976. It encompasses 13  
regional associations and has more  
than one thousand members. For  
information on the association in  
your area, consult our Web site or  
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## essage from the editorial staff

It's true! This spring, the publication of L'Express coincides with the second international medical convention on autism to be held in Québec. We take this opportunity to congratulate the organizers of the event. Remember that it is not easy to have such high calibre researchers return here year after year. It is a major event for us since we are able to publish, in this issue, articles that will inform you of the progress made in research conducted by several of the convention's guest speakers. We will summarize the main trends and concerns as expressed by these avant-garde researchers. These are the people who will undoubtedly be able, in the near future, to identify conditions allowing us to improve the life of autistic children.

In order to level any barriers that may exist between researchers in different sectors or even between parents and doctors, we advocate open-mindedness and mutual respect. We urge you to read the editorial that focusses on the proper attitude for bringing the various interested parties together. Considering the importance of our cause, it really is time-consuming and counter-productive to waste energy on vain and sometimes childish confrontations. It is autism that is the important subject, not differences of opinion. Let us try to establish a sense of harmony between our resources and aim for progress. It is urgent and absolutely necessary to do so.

There is usually an air of creativity and excitement in important conventions and this will surely inspire you to seek to familiarize yourselves with the major scientific theories discussed at the DAN congress held earlier in September 2000. Marie-Christine Destison has summarized them for you in a very comprehensive and interesting report. You will have to be very attentive, however, since the scientific ideas and arguments follow each other at a rapid pace. We also wish to direct your attention to a letter she wrote in reaction to a conference on the possible relation between vaccines and autism. Consult page 38.

A word on vaccines will allow you to be informed on the most recent progress of research by Dr. Andrew Wakefield on vaccination. You will also have the opportunity of reading Dr. Bernard Rimland's opinion on the effect of mercury contained in vaccines and in the environment. We encourage you to learn about Dr. Wendell Weber's theory on genetic profiles, which could perhaps explain the exaggerated reaction to some elements (vaccines, mercury, etc.) displayed by autistic children.

Your attention is called to a survey of a vast sample of parents on the effectiveness of drugs and treatments used in cases of autism. Finally, of particular interest are reports by parents of Asperger children, telling of the special difficulties the diagnosis causes for the academic or professional integration of their children. The survey is a reminder of our commitment to providing a voice to the parents and relations of autistic persons, allowing them to express their concerns and their need for change.

# Editorial

*By Jean-Claude Marion*

Why not take advantage of the fact that a prestigious convention on autism will be taking place in Québec this autumn to express our thoughts on the attitude to adopt with regard to the scientific developments exposed by researchers considered to be pioneers in their fields? Because, those who bravely submit theories which question those that the medical community has held as infallible truths for ages, are truly in the forefront of a difficult battle.

Without going into detail about the different views advanced by the guest speakers, we hope that all can keep an open mind with regard to the work of the researchers. Generally speaking, they have succeeded in shedding new light on some events and practices which have been kept too long by the medical community as an immutable psychiatric paradigm. If these new theories cause some shaking up of old established and hopeless doctrines, then the efforts made, sometimes debatable but always intriguing, have succeeded in bringing a new coherence and some hope to parents. This is far from pseudoscience proclaimed simply for the purpose of calming exasperated parents, whose state of mind is certainly justified. We are in the presence of articulate theories submitted by competent physicians and researchers whose views deserve to be interpreted with discernment and, of course, with a critical eye, but always with an open mind.

Of course, a revolutionary new way of seeing things can lead to different reactions. There is often a sentiment of doubt, of resistance to change, even of fear at the thought of accepting theories sometimes considered by reputed scientists to be hasty simplifications. And it is true that, at times, the pendulum swings too far and risks getting into the realm of the esoteric. In most

cases, however, the theories presented are troubling to scientists but plausible. They should, at the very least, intrigue a researcher worthy of the name. For example, the Wakefield theory merits verification (link between autism and the measles vaccine) to determine whether it will stand up to testing in the future and, if so, whether it will do what is needed for a generation of children who are genetically predisposed. Let us hope the medical community and the authorities prove to have a sufficiently open mind to consider (for validation or exclusion) the theories which will be advanced during this important convention.

We also want to take advantage of the gathering of so many autism specialists, and of the information campaign which is sure to form part of the event, to foster constructive and responsible exchanges between physicians and the parents of autistic children. It is high time that existing walls are destroyed as well as other assumptions of superior knowledge which are often called upon to justify the distrust of parents' opinions. Are not parents the best specialists with regard to their children? A good number of parents, in fact, have an intuitive internal recognition of the disability their children suffer from and it would be a good thing if a respectful dialogue could take place between the parties. Let the barriers of misunderstanding fall and let each person make a contribution to ensure the well-being of autistic persons.

# The most *recent* DAN conference

by Marie-Christine Destison with the valuable technical assistance of Jean-Claude Marion

The extended DAN family (*Defeat Autism Now!*) got together once again in San Diego on September 16<sup>th</sup> and 17<sup>th</sup>, 2000 for its annual meeting (the third one for me) with an opportunity to introduce Internet communications with parents as well as with professionals.

## ► Day one

The two initiators of the movement, **Dr. Bernard Rimland** and **Dr. Sidney Baker**, opened the meeting by strongly insisting that traditional medicine must reach beyond its present limits with regard to autism, since there seems to be no standard medical procedure. Speakers put forward a base of known facts in order to prevent and even care for the problem that brought us here. As for parents, they should be better able to face the condition of their child, so as to be better equipped to consult with a health professional. Ideally, that is what we all hope for.

## Various treatments

Dr. Baker (weak from flu) reminded us that there was no way to provide a recipe or a list of miracle treatments, since our children suffer from such a variety of problems: immune system, digestive and cerebral disorders. It seems that everyone requires a personalized treatment. Therefore, people have to use their common sense and undergo a number of laboratory tests. After quoting the famous saying by Vaclav Havel (*Follow those in search of truth and run from those who claim to have found it*), he added that the old medical adage stating that *when a lot of things seem to work, nothing works*, does not apply to autism. He reviewed:

- antifungal treatments (natural medicine and products); nothing new in the past few years;
- antibacterial treatments for the rare children who respond positively

(Vancomycine, Gentamycine or Cipro);

- antiparasitical treatments, stressing *Blastocystis hominis*, seemingly overlooked by traditional medicine and treated with Bactrim, Humatin, Yodoxin or, with natural products, with *Artemisia annua*, other herbs or an extract of citrus fruit;
- antiviral medications such as Acyclovir, Valacyclovir, Farciclovir and Gancyclovir, that have proved helpful against Herpes simplex/zoster;
- digestive treatments: all enzymes of diverse origins, organic and vegetable that break down large molecules, in addition to the new generation of peptidase such as Serenaïd (Klaire Laboratory) or Enzymaid (Kirkman);
- for the few children who respond positively for a short time to steroids, drugs such as Depakote, apparently more effective than Clonidine, Risperidone and Prozac. These drugs lead to further problems when used long term;
- educational treatments, which are not part of his personal experience but which lead him to believe that focussing on a child's strengths increases self-confidence; the best results ensue from high expectations and this attitude should be applied to all children, with or without disabilities;
- treatments involving intestinal flora: diet is a first approach (eliminating wheat, oats and casein that promote Clostridia). Do we have to repeat that yeast likes sugar? Fibres and probiotics are more effective than antibiotics, that do more harm than good;
- other diverse treatments such as oxygen therapy, cranio-sacral therapy, homeopathy, secretine;

- treatments involving the immune system: (remarks on the correlation between the immune and nervous systems that form a single unit in the process of perception and memorisation = recognition, which goes on at a microscopic and chemical level).

The correlation between the immune and nervous systems that form a single unit in the process of perception and memorisation = recognition goes on at a microscopic and chemical level in the immune system. Emphasis is placed this year on the predominance of the TH2 as compared to TH1 (two forms of auxiliary T cells) that could benefit from measures such as antifungicides, the IVGGs, the blood transfer factors, colostrum or EPD (Enzyme Potentiated Desensitization);

- treatments such as melatonin, cellular therapy and FGF (Fibroblast Growth Factor);
- food supplements that we have heard about for a long time; B6, Mg, DMG, zinc, selenium, cod liver oil, calcium (essential for casein-free diets), B12, onager oil, DMAE, urocholine, glycine, MSM;
- sensory treatments; auditory, visual, tactile therapies;
- activated charcoal treatments (to counter reactions to the elimination of yeasts) Alka-seltzer Gold (alkalizes or neutralizes acidity).

All these treatments are not independent one from the other, far from it.

Dr. Rimland quickly denounced the unfavourable reception by the medical community of the new options proposed for autism since the 60's. Contrary to the model proposed by Linus Pauling who spoke of ortho-molecular psychology ( the use of supplements to provide substances required by the organism,) psychiatry continues to prefer the use of drugs, even when they contain toxic substances. He reminded the audience that 100,000 people die every year as a result of ingesting prescription drugs. Out of a sample of 3000 families, 44% reported that their child's condition worsened after taking Ritalin, whereas 29% reported a positive effect. With regard to vitamin B6, 46% are satisfied versus 4% (which is statistically negligible). Dr. Rimland also provided us with a statistical chart on the effect of drugs and vitamins based on information received from parents.

## Fatty acids

Dr. Andrew Stoll, head of the psycho-pharmacological laboratory at the MacLean Hospital affiliated with the Harvard University School of Medicine, reminded us that the question of diet has always met with hostility from the medical profession, but that this attitude is changing. Nutrition is not considered important and is not taught in medical faculties. However, the Omega 3 fats are beginning to arouse interest in a growing segment of medical practitioners.

Different theories relative to the onset of autism include:

- early exposure to exogenous opiates from poorly digested gluten and casein proteins (genetically determined or acquired following candidosa, for example) or the result of a lack of digestive enzymes or defective permeability of the mucous membranes or of the blood-brain barrier.
- an inflammation of the intestine (quite unlikely as a cause for the majority of autistic patients).
- a theory relating to lesions to the amygdala tissue (associated with the brain's gray matter), which is involved in "emotional intelligence and moods." It is known that specific lesions to amygdala tissue lead to personality changes such as emotional instability, agitation or increased aggressiveness, appetite and libido. The destruction of amygdala tissue in animals causes problems that resemble autism. Nuclear magnetic resonance (NMR) reveals that the amygdala tissue functions inadequately in many autistic patients. Other X-rays of the brain indicate that some autistic patients have an enlargement of the temporal-parietal regions (important in the hearing process, among others) and a reduction in the size of the posterior corpus callosum (having an important role in communication).
- A deficiency in Omega 3 fatty acids, perhaps resulting from the placenta during the intra-uterine period, or from breast milk

When a baby with a specific genetic predisposition is fed breast milk, he may develop autistic problems. The addition of Omega 3 is one of the treatments proposed for inflammatory disorders of the intestine; there would therefore seem to be a link with the gastric problems de-

tected in some autistic patients. Omega 3 is indispensable and is not provided by the organism. The source has to be external, and therefore dietary. In North America, we are seriously deficient in Omega 3 and our tendency to use vegetable oils to avoid heart problems has led to a competition in our bodies between Omega 3 and Omega 6 fats.

### Different Omega 3 fats

- Eicosa-pentanoic Acid (EPA) used for Crown's disease and for bipolar disorders (manic-depression).
- Alpha-linoleic Acid (ALA) found in linseed oil.

Dr. Stoll is not in favour of taking this oil because it may lead to manias and to goiter and thymus problems; in addition some people are unable to transform it into longer chains of Omega 3, such as DHA, EPA and ALA, which are particularly necessary.

The quality of the oils is important. They must have high concentrations of EPA and must have been prepared under nitrogen and not oxygen in order to eliminate the fishy aftertaste. There is also the ever-present danger of mercury. Fresh water fish is proscribed. And, as for canned tuna, if you consider that weekly consumption represents a toxic dose of mercury for an adult, imagine what it is for children. Cultured fish is not satisfactory either, since it does not feed on algae. The solution seems to be to choose small fish like sardines and anchovies and those that are at the bottom of the food chain, and which, logically, should be less contaminated.

With regard to the active element and the dosage, there is still a lack of knowledge of how Omega 3 works for autistic patients.

**Dr. Paul Hardy** continued with this presentation, and described himself as a former fan of prescription drugs until he attended a DAN conference.

The absence of Omega 3 (anti-inflammatory) in our organism fosters an increase in Omega 6 (inflammatory) which, in turn has an effect on the production of dopamine. Symptoms of deficiency are dry skin, dandruff, whiteheads on the arms, elbow, thighs and buttocks, fragile nails, excessive thirst, frequent urination and incontinence, hyperactivity, asthma, hay fever, hives, itching, and nasal drip. Autistic patients' diet is often quite limited and they seem to be attracted to dairy products, wheat, sugar and foods containing Omega 6.

About 40% of children with autistic disorders have many nutritional deficiencies making it difficult to metabolize Omega 3 fats. Consequently, before giving them any, they must take vitamin B6, folic acid, vitamins A, C and E, zinc, magnesium, calcium, iron and selenium. Dr. Hardy presented a video showing the effectiveness of Omega 3, depending on its concentration, especially for the problem of incontinence (nutritional deficiencies affecting the longer nerves in the body, and the one from the brain to the bladder is one of the longest).

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*"The addition of Omega 3 is one of the treatments proposed for inflammatory disorders of the intestine; there would therefore seem to be a link with the gastric problems detected in some autistic patients. Omega 3 is indispensable and is not provided by the organism."*

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### The immune system

**Dr. Jane El Dahr** from the Tulane Medical Center gave us a course in immunology in record time. The subject being difficult, she compared the immune system to army logistics. She gave us a great number of mnemonic techniques to help us understand this topic where Dr. Gupta had often lost us.

We have an innate immune system (without specificity, without a memory : white globules) and an acquired immune system (highly specific for every pathogenic element and one that records all attacks so as to be better able to fight them from one time to the next: lymphocytes). Lymphocytes include B and T cells (B for bone marrow and T for thymus).

#### B lymphocytes (or B cells)

B lymphocytes establish human immunity. They are responsible for producing various types of immunizing globulins or antibodies (tiny proteins that hang onto specific invaders to destroy them). There are four types of these immunizing globulins: the IgA, the first line of defence (to continue with Dr. El Dahr's comparison with the military). These are found in the mucous membranes and the saliva, the IgMs which are rapidly deployed to contain the invasion, the IgG, powerful forces that remain active for a long time and attempt to control the attack (four subclasses of IgG), and finally the IgEs, causing allergies and hypersensitivity.

## T lymphocytes

These are responsible for cellular immunity and include, among others:

- the Th1's which fight foreign cells, those that are cancerous or infected by a virus or a fungus;
- the Th2's which get in touch with other immune system cells, free proteins (called lymphokines) that increase immune and inflammatory reactions and that interact with B lymphocytes, producers and keepers of antibodies (immunizing globulins and allergies).

There must be a balance between these two types of cells. With our children, there is a predominance of Th2's, preparing the ground for allergies, over Th1's, and this predisposes them to viral infections, to candida and to problems with their auto-immune systems.

Dr. El Dahr continued, stressing the auto-immune factor and the effects of mercury on the brain.

Auto-immunity, which concerns T and B cells, is often recognized by the young autistic patient's family, particularly with regard to the antibodies that are "anti-brain," such as IgG and IgM (against serotonin, etc.) and the thyroid.

With autistic patients, the tendency is as follows:

- Increased Th2's
- Low IgA;
- IgE, IgG against food;
- Intestinal permeability;
- A low level of Th1's favouring viruses and yeast infections;
- Reduced activity of NK cells (*natural killers*);
- Production of many "anti-brain" antibodies
- Alteration of the natural process of cell renewal (apoptose);
- Inactive DRPIV enzyme causing excessive opiates;
- Zinc deficiency
- Genetic predisposition
- A good response to IVIG treatments.

Mercury also produces irregularities of the immune system, like those mentioned above:

The symptoms are:

- Reduced recognition of faces
- Sight problems
- Reduced field of vision
- Insomnia
- Irritability
- Excited behaviour
- Anxiety
- Social ineptitude
- Difficulties in verbal expression
- Change in taste
- Sense disorders of the mouth
- Slow reaction time
- Deficient short term memory
- Concentration difficulties
- Abnormal EEG (electroencephalogram) (particularly with regard to the temporal lobes)

As Dr. El Dahr aptly says: *Does that remind you of something?"*

Antihistamines, viral treatments and injections of immunizing globulins are also scrutinized. For those lacking IgA who suffer from chronic constipation or diarrhea, Dr. El Dahr recommends probiotic supplements. The colostrum blood transfer factor and human immunizing globulins taken by mouth (under study at BAYGAM) are mentioned as possible aids to counter this immune deficiency in the digestive system.

## Vaccination and thimerosal

Dr. Stephanie Cave then addressed us. She practices in Baton Rouge and was present last year. Her topic: Vaccination and thimerosal. After relating the history of vaccination dating from 1905, with the introduction of the smallpox vaccine, to the new proposals for vaccines against sexually transmitted diseases, soon available and addressed to all 12-year-olds, Dr. Cave reminded the audience that mankind had lived a long time with these illnesses and that, although it has been wonderful to be rid of many devastating epidemics, we are now sinning by excess in terms of vaccination.

We should conduct further and more thorough research before imposing all kinds of vaccines on the population. And, it has become obvious that we are paying dearly for the success of certain vaccines. Whereas the proportion of autistic patients was 1 in 2000 in 1970, and 1 in 500 in 1996, the ratio in the year 2000 is 1 in 150. The epidemic is growing at the same rate as excessive vaccination which is not always safe. The everlasting question concerning the epidemic of autism has been raised: *Have we become better diagnosticians?*

To which, Dr. Cave answers that it is hard to believe that a child with the classic symptoms of autism, such as the absence of visual contact and language, self-mutilation and aggressiveness could be missed during a diagnosis.

There have never been so many children with learning problems and auto-immune disorders in the entire history of medicine. The vaccine against hepatitis B was introduced in 1991 and is now injected on the day of a baby's birth. For the past ten years, we no longer talk of autism but of an autistic epidemic. The questions raised by Dr. Cave are the following:

- In our desire to eradicate all illnesses, are we not going beyond the capacity of an immune system by vaccinating children too much and too soon?
- Are we really satisfied with the safety studies conducted on vaccines?
- Are we not attempting to give too many vaccines in too short a time?
- Do we really understand the side effects of the components in vaccines such as thimerosal, aluminum and formaldehyde? As mentioned by Dr. El Dahr, the symptoms of mercury intoxication are superimposed on those of autism.

Mercury contamination does not come only from vaccines. Mercury may also be transmitted in the womb in the case of mothers who eat a lot of fish, who have dental amalgam fillings, or who were given the Rhogam vaccine during their pregnancy to combat the antibodies which could harm the baby because of the antagonistic nature of their blood group (RH negative mother) or the flu vaccine. In a study which appeared in the *Journal of Pediatrics*, it was revealed that children had higher levels of mercury after vaccination, up to 237 mcg, before the age of two. There are now vaccines without thimerosal and, according to the policy of the

CDC (Center for Disease Control), all vaccines will soon be exempt from thimerosal.

Handy tips for safe vaccination:

- Vaccines without thimerosal;
- Sick children should not be vaccinated;
- Leave a lapse of time between vaccinations; not 6 to 9 combinations the same day;
- Use DtaP instead of DPT (Diphtheria, whooping cough, tetanus);
- Divide the mumps, measles and German measles vaccine into its components, beginning with measles at 12- 5 months, mumps as 18-21 months and German measles at 24-27 months;
- Do not give vaccines to children with deficient immune systems;
- Do not give vaccines to children who are allergic to one of the following components: yeast for hepatitis B, eggs for the MMG vaccine, neomycine for the MMG and/or chicken pox vaccines;
- Check on levels of antibodies before giving booster shots at 4 or 5 years of age (these are often useless).

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*"We should conduct further and more thorough research before imposing all kinds of vaccines on the population. And, it has become obvious that we are paying dearly for the success of certain vaccines."*

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Preventive measures:

- Give vitamin A in the recommended doses;
- Give vitamin C before and after vaccination.

DMSA treatments work well: mercury is eliminated and, at the same time, the cellular chemistry is restored. A diet without gluten or casein is introduced; the intestinal flora becomes balanced and the detoxification of the liver is reestablished.

In brief, Dr. Cave declared: *"We cannot eliminate all infections. We need more thorough research on vaccines, but we should have freedom of choice."* Her final word: *Pray.*

In the afternoon, **Dr. Brock** spoke of blood transfer factors (TF). He believes that there is a genetic predisposition to autism, and that a neuro-immune toxin attached before or at birth is to be considered in the case of some children whose behaviour regresses after vaccination. He repeated the importance of vitamin A and zinc to ensure a proper response of the immune system and also to lessen gastrointestinal problems which are linked to chronic atypical viral infections and to auto-immune reactions.

We should keep in mind that the Th2 immune response is predominant in our children and that the blood transfer factors (TF) favour the production of Th1. In theory, therefore, this should help. These TFs consist of small molecules with a peptic structure, derived either from donor leucocytes, or from bovine colostrum, and can transfer the donor's immunity to a receiver. The TF contains a recap of the immune experiences

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*“Scientists from the National Academy of Sciences issued a warning to the public about methyl-mercury, a persistent and widespread problem in our environment which could result in neurological lesions affecting 60,000 newborns every year in the United States”*

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of the donor and may be administered orally without being destroyed by gastric acid or enzymes in the digestive system. Once again, this is not a miracle cure, but rather a piece of the puzzle. Its ingestion gives good results in the areas of visual contact, cleanliness and it leads to a drop in infectious illnesses.

Dr. Bock declares that he is not convinced of the usefulness of tests for evaluating the cytones, the concentration of the chicken pox virus or the levels of retinol. He prefers that children be tested before and after a TF treatment (200 mg three times a day) with the GARS (Gilliam Autism Rating Scale)

One month before and after vaccination, Dr. Bock recommends the ingestion of vitamins A, C, E and zinc in addition to the TF.

And, with Dr. Woody McGinnis, the problem of mercury and vaccination is brought up once again. The document entitled *“Autism: A Unique Type of Mercury Poisoning”* (Bernard, Enayati, Roger, Binstock, Redwood and McGinnis) comprising 80 pages of facts and research, was

honoured again recently before a hearing at the American Congress on the problem of thimerosal in vaccines, when it led to a positive reaction by competent authorities who promise that, shortly, vaccines will be free of thimerosal. Scientists from the National Academy of Sciences issued a warning to the public about methyl-mercury, a persistent and widespread problem in our environment which could result in neurological lesions affecting 60,000 newborns every year in the United States (ABC News, July 2000). Last year, in the Chicago area, the level of mercury in rainfalls was seen to be 42% higher than federal norms for drinking water. Mercury, cadmium and lead are increasingly present in vegetables watered with rain water.

**Dr. Bock** reminded us that other cases of mercury poisoning were called by other names in the past, notably the pink disease (caused by a powder used to relieve teething problems with calomel, a product containing mercury) which, during the 1920s affected thousands of children in Australia, and the Minamata disease, due to eating contaminated fish or cereals treated with fungicides used in Japan between 1950 and 1960.

The symptoms of these two diseases are similar to those of autism: extreme sensitivity to sounds and to light, insomnia, anorexia, repetitive rocking movements of the head and body, aversion to touch, elocution problems, ataxia. No tangible abnormalities were detected in laboratory tests at the time. Reduction of the field of vision mentioned by Dr. Megson is similar to the problem cause by mercury poisoning. The same similarity exists in gastrointestinal problems like diarrhea and constipation.

Mercury inhibits the famous DPPIV enzyme which is supposed to destroy the caseo-morphine during digestion and which is considered by Drs. Shattock and Reichelt to be deficient in our children (explaining the reason for a casein-free diet for autistic patients). Other abnormalities detected in cases of autism and mercury poisoning are abnormal rates of urinary sulfates and bicarbonates in the blood. The lack of potassium, together with general acidity, inhibits the conveying of sulfates for renal functioning. There was also noted a prevalence of candida and other yeast infections which have a destructive effect on intestinal mucus which is rich in sulfates, i.e., mucine. Another disorder involves a blocking of the transmission of calcium affecting energy production in cells, and the transmission and survival of immature neurons. The cholinergic system is also affected. With regard

to the auto-immune system, the majority of autistic patients (80%) have positive markers, just as in exposure to mercury.

Gluthation is often recommended. It is an antioxidant that attaches itself directly to metal, as is metallothionein, a protein that covers metals while respecting the balance between copper and zinc. Methionine, an amino acid found in meat and beans, is transformed into cysteine, which, in turn, becomes glutathione, metallothionein and taurine, excellent for detoxifying and absorbing calcium. To stimulate the

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*“Although a number of chromosome abnormalities have been detected in autistic persons, it must be remembered that genes merely confer susceptibility to a disorder.”*

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process of detoxification, vitamin B6 (in its PSP form), magnesium, zinc, vitamin B12, folic acid and taurine are efficient. A warning is called for, however, about cysteine: by attaching itself to mercury, it can encourage the movement of the metal toward the brain. It can also aggravate candida infections. It should therefore only be used under close medical supervision. Vitamins C and E, selenium and calcium in a citrate form are also good detoxification products.

Chelation therapy can be dangerous and do more harm than good. Patience is required. One should proceed slowly and ensure proper nutritional support.

In spite of his obvious efforts to simplify his speech, which was highly scientific, Dr. Gupta once again left many listeners behind. In fact, during the discussion period, one of the first speakers remarked: *“We are flattered that you gave us such a high quality speech, we only wish we could have understood it!”* Since Dr. El Dahr had already presented us with a speech on the immune system, he did not have to make his. He therefore started his exposé by insisting on the fact that, although a number of chromosome abnormalities have been detected in autistic persons, it must be remembered that genes merely confer susceptibility to a disorder. **They do not cause the disorder. The environment is what sets it off.**

Since immune deficiencies in autistic persons are evident (respiratory infections, allergies, candida, etc.), Dr. El Dahr dwelt for some time on the possible role of IgA's as therapeutic agents. Such a treatment exists in Europe in oral and

nasal forms and is much more powerful and efficient than treatments using IgC's. The role of the IgA's is of utmost importance since they are the most widespread antibodies. They are found in saliva, in breast milk and they cover all mucous surfaces. They control infections (which is not the case for IgG's), particularly viral infections (for example, by preventing the difficult Clostridium toxins from attaching themselves to receptive cells), by suppressing inflammatory responses. My son is a living example: major clostridia infections and an almost nonexistent rate of IgA's.

Recently conducted studies by Dr. Gupta have led him to wonder whether, as in the case of multiple sclerosis, the sodium channels (the paths for conveying sodium) could be blocked in our children. Could autism be a disorder of the ion channels (ionic exchanges) and mitochondria? The production of energy (occurring in cells through the effects of mitochondria) and the structures depending on this energy would be at the core of the biochemical problem.

With regard to immunizing globulin injections, a blind test will be performed within six months on 24 subjects, using 400 mg/kg over a period of four weeks.

## ► Second day

Dr. Baker opened the sessions by reviewing the main topics covered the day before:

- the transfer of blood factors favour Th1 immunity;
- the role of IgA's would appear to be more interesting than IgG therapy;
- mitochondria (energy production) would appear to be a factor in autistic problems;
- vaccination: public interest vs private interest;
- yeasts: for 20 years, the medical community has refused to take them into consideration and does not evaluate them correctly;
- nutritional pharmacology is the absolute opposite of medical prescriptions.
- Treating an illness does not necessarily mean treating a particular person.

Dr. Baker insisted on the nest and final point; the most important factor for understanding an illness is not the diagnosis or the label, but rather lab tests and symptoms. Ideas and classifications are not entities. For a long time now, Dr.

Baker has been listing all symptoms of autism and the results of analyses in order to use these concrete data as a tool for democratizing medical information. In other terms, we are all invited to record our observations by responding to a questionnaire that he has drafted so that various typical portraits can be established with appropriate treatments.

### Natural vitamin A

**Dr. Megson** began her exposé with a question: *“Could a G alpha protein deficiency seen in autism be compensated for by taking natural vitamin A?”*

In her opinion, autistic children have blockages in the brain, preventing them, for example, from associating the object they see with the word designating it. She mentioned numerous family antecedents that predispose children to autism; cholesterol, an allergy to milk, altered night vision, some cancers (colon, lung, breast, prostate) and diabetes. These are signs of a G protein deficiency and the addition of another abnormality such as whooping cough toxin (in the diphtheria, tetanus and whooping cough vaccine) in genetically predisposed children could be the cause of their autism.

Breast-fed babies receive the natural form of vitamin A, whereas those fed by formulas receive it in an altered form (trans). Dr. Megson says that she is particularly outraged that children with very low levels of vitamin A are nevertheless vaccinated against measles (a vaccine that saps the reserves of vitamin A). The consequences are mainly in relation to vision; (the cones and the rods are affected). Children live as though they are in a world like an abstract painting; they prefer to remain in a limited space; they see their immediate environment as a mass of colours. Children who avoid direct visual contact look at us sideways because they use another part of the retina. Many odd attitudes can be explained if we try to understand how they are able to perceive. Vitamin A is not the only answer to the problem; it is only a piece of the puzzle, but an important piece. Dr. Megson spoke only a little about bethanecol that she also uses in her practice, because, often vitamin A is sufficient.

### The DPPIV enzyme

**Dr. Jon Pangborn** spoke about the famous DPPIV enzyme, which is a liaison protein with an important role in the metabolism of purines, in the transformation of lymphocytes in their T, B, NK (natural killer) cellular forms. It is respon-

sible for digesting part of the casein molecule (the beta casein accounts for 209 amino acid residues). It is found in numerous tissues, particularly on the ciliate part of the epithelial membrane and in the lymphocytes. Some patients with phenyl-ketonuria are autistic, some with a fragile l’X are autistic, others suffering from the Rett syndrome are autistic, but their numbers remain constant. The group of autistic persons which is growing alarmingly is the one where there is a deficiency in the DPPIV/CD26 enzyme. It is therefore important to understand what is the cause of the deficiency.

Some antibiotics, abnormal intestinal flora, inhalation of natural gas (ethyl mercaptan), fluorides, pesticides, mercury and lead inhibit the action of the DPPIV molecule. Fortunately, depending on our individual nature, we do not all suffer to the same degree from this problem, to the point of being disabled. Depending on which DPPIV mechanisms dysfunction, treatments range from taking peptidase-based digestive aids, to a gluten and casein-free diet, or to methods for preventing attacks on the immune system. Certain supplements can aid the process, such as vitamin B6, or B12, folate (folic acid salt) and serin, as well as DMG and zinc. The latter should, however, be taken long before or after meals, as it inhibits the DPPIV enzyme. Clinical studies over a four-week period resulted in improved social, language and comprehension skills. Tests recommended for detecting this deficiency include peptides in the urine, amino acids, an analysis of hair for the presence of toxic elements, an analysis of stools for digestive factors, organic acids, food allergies, etc.

### Environmental factors

**Dr. Paul Shattock** dealt with environmental factors as activators of autism. In England, a considerable increase in cases of autism was noted in children born in 1984-1985. He associated this with environmental factors. Authorities noted that there was an increase in cases of asthma, cancer, allergies, diabetes, etc., but for some reason or other, they do not take into account any increase in the cases of autism. Any reasonable person should be thoroughly dismayed to discover that, in certain areas, one boy out of 69 is now autistic.

This does not seem to concern the government which allots 90% of its autism research budget to genetics. But, in Dr. Shattock’s view, the explanation is to be found in a combination of genetic fragility and environmental factors. Genetics do not change rapidly, whereas external

elements do, notably the introduction of new vaccines, pesticides, heavy metals or toxic perfumes. An existing hypothesis claims that peptides derived from food are carried in the blood flow to the brain, affecting neuro-transmission, which, in turn affects perception and cognition. This can happen when a vaccine creates a “breach” in the wall of the intestines or if some other factor causes the barrier between blood and brain to deteriorate. The profile of peptides in the urine varies depending on the severity of the autistic disorder; those with Asperger often show a single high peak, whereas the more serious ones have several peaks. The treatment protocol proposed by the University of Sunderland is the following:

- 1) “cease fire,” i.e. eliminate the source of the problem; cut out casein for three or four weeks, and, if there is no improvement, reintroduce it. Eliminate gluten for three months and repeat the approach used for casein;
- 2) lead the way: search for other foods that may be involved (corn, soya, tomatoes, avocados, beef) test vitamins, minerals, amino acids, allergies (IgG, IgE), check yeasts, parasites, viruses, bacteria, and add supplements depending on results (zinc, calcium, magnesium, vitamins A, C, B1, B3, B6);
- 3) reconstruction phase: sulfate problems (Epsom salts, MSM); enzyme activity (hydrochloric beta); fatty acids (onager oil, fish oils) intestinal permeability (L-glutamine); digestive aids (Bromeline, Serenaid, Enzymaid).

Other possible, although infrequent, treatments are: a pigment-free or salicylate-free diet, secretin, food supplements like DMG, hydroxytryptophane 5 or megadoses of vitamin B6, magnesium

**Karen Seroussi and Lisa Lewis** gave us a few tips on gluten and casein-free diets. Children who are most apt to respond favourably are those whose autistic symptoms appeared quite late, those who have a high pain threshold, or who have problems with diarrhea and constipation and whose food intake is very limited. This does not mean that others cannot also respond.

It is absolutely necessary to make the food resemble what the children like so that at least the presentation won't be too different. Jewish Easter is a good occasion to stock up on gluten

and casein-free foods (Parve or Pareve brand names). It must be understood that the presence of opiate peptides does not constitute a FOOD ALLERGY, and thus treatments for allergies are of no use. If the diet works, any interruption or small exception will have consequences on behaviour. There is a big difference between following the diet at 98% and 100%.

## Mercury

Instead of **Dr. Candace Pert**, who was excused, **Dr. Holmes** spoke on mercury and on a treatment which she proposes. She led discussions with various parties, including **Dr. Vera Stejskal** who mentioned a new blood test known as **MELISA** (ME for Memory, L for Lymphocyte, I for Immuno, S for Stimulation, A for Assay) that evaluates lymphocyte sensitivity to mercury. Her study reveals three times more sensitivity to

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*“In Dr. Shattock’s view, the explanation is to be found in a combination of genetic fragility and environmental factors.”*

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heavy metals in autistic patients than in others. The test also allows us to differentiate between various forms of mercury (inorganic Hg, ethyl Hg, methyl Hg, thimerosal, thiosalicylate H chloride) plus nickel, cadmium and aluminum.

**Dr. Boyd Haley**, a well-known biochemist also present at this forum, explained that he had no intention of trying to convince anyone that mercury causes Alzheimer or that thimerosal found in vaccines causes autism, but said rather that he wanted to demonstrate that it is absolutely necessary to understand the action of mercury. It is possible to poison the brain with mercury and then to claim that the person suffers from Alzheimer. He published this hypothesis because he thought it would be of general interest. As a result, the American Dental Association sued him. He stated that the quantity of mercury from one dental amalgam or filling is 43 mcg per cm<sup>2</sup> and per day (without supplementary abrasion or pressure). This is obviously a toxic level. As for thimerosal, it is even more toxic for enzyme activity than basic mercury, and it is even more so if it has been exposed to light.

There are 50 mcg of thimerosal in a vaccine. Using the following formula: 50 mcg per 6 lb of weight for a baby is equivalent to a dose of 1.5 mgr for an adult weighing 180 pounds. Is there a single adult who recommends thimerosal for

children who would be willing to accept an injection containing 1.5mg of mercury?

**Dr. Holmes** strongly urged everyone present to read the document entitled “The elimination of mercury to treat autism” (on the Autism Research Institute Web site: <http://autism.com/are>). She affirms that most cases of autism are due to mercury poisoning before or after birth, which, one month after exposure, attaches itself to the cells, in such a way as to be difficult to detect. There are no traces of it in the urine, the blood or the hair, unless exposure was very recent. Doctors who recommend these tests are looking for lead poisoning which is completely different. For mercury to really show up, what must be examined is its impact on enzymes and other biochemical processes (organic acids in the urine, porphyrines broken down in the urine, testing hair for oligo-elements). Clinical observations should also be made: dilated pupils, dampness of hands and feet, squinting, walking on tiptoe, skin eruptions, eczema, rapid heart rate. The protocol she uses successfully for her son is the following:

- 1) eliminate all sources of mercury, take out dental amalgams, eat no fish. If a child needs to be vaccinated, insist on a mercury-free vaccine. Avoid eye and ear drops that contain thimerosal;

- 2) eliminate all mercury that circulates freely in the body. The product used, DMSA, is taken every four hours (including night time) for three days, followed by a four-day break. If the process is suitable for the child, it is repeated for one to six months. Giving it less often is dangerous, since the mercury which is freed in the child’s system will be redeposited on other tissues before being excreted.

**Attention:** It is to be noted that the above protocol was slightly modified at the recent Orlando congress (dosage and frequency);

- 3) finally, evacuate the mercury which has settled in the organs (in the brain, for example). To do so, continue with the DMSA and add alpha-lipoid acid following the same schedule as previously, for six months to two years. Side effects include more pronounced undesirable behaviour which is only temporary, possible bouts of diarrhea, nausea and fatigue.

This treatment should, of course, be given under medical supervision (DMSA is only available on prescription) who will do blood tests during the treatment, and check on liver function and copper retention. The improvements noted in

Dr. Holmes’ son (who, in fact, spends 35 hours a week in an educational milieu of the ABA type) are better language skills, greater autonomy, and increased interaction with others. In 13 months, her son advanced by 20 months for language and 21 months for cognition.

**Liz Birt**, a lawyer mother who is attempting to organize a fund-raising campaign in support of Dr. Wakefield’s research, informed us that she will be in Washington in about one month to insist that the FDA (Food and Drug Administration) recall immediately all vaccines containing thimerosal.

She says she will bring along all data gathered on the subject, research papers as well as concrete proof, and that this will be sufficient to convince the FDA of the scope of the problem. A short but striking and unequivocal extract from the most recent hearing on vaccines presided by senator Burton (the grandfather of an autistic child) was also presented. As a matter of fact, the government representative designated to answer questions was only able to mumble and finally kept silent, arms flailing before such a deluge of incriminating proof of the unacceptable vaccine policy. **Rick Rollens** told the audience that the MIND Institute is on the point of sending the results of research done on vaccines to all American pediatricians as well as to legislators involved.

## The measles virus

In conclusion, the very charismatic **Dr. Wakefield** talked about his research on the measles virus in the intestines of some autistic patients. Undoubtedly, this was kept to the end so as to keep us wanting to hear more, but, unfortunately, our neurons were no longer very receptive.

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*“In short, different techniques and different researchers come to the same conclusion: the strain of measles vaccine remains alive in the wall of the intestines of some children”*

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He reported on a study performed on 385 autistic children whom he examined and among whom 46% showed signs of clinical gastrointestinal problems, vs only 10% in the control group (95). Problems ranged from intestinal permeability to nodular lymphoid hyperplasia. His most recent blind test on 40 subjects was published in September in the Journal of Gastroenterology.

He also mentioned the development of a new technique based on DNA similarity (virus as compared to the samples) called TAQ man, that allows for a rapid and meticulous study of blood samples and various tissues. The technique could serve to show up the measles virus as the activator of autism. The Japanese have also amplified the gene from blood and not from tissues. Likewise, **Dr. Vijendra Singh** (Utah State University) attacked the problem under another angle and has reached the same conclusion as Dr. Wakefield. He disclosed that, following this same vaccination, the reaction is the destruction of a protein (myelin) that sheathes the nerves of the body and that plays a role in the transmission of nerve signals. In short, different techniques and different researchers come to the same conclusion: the strain of measles vaccine remains alive in the wall of the intestines of some children.

The MMG vaccine does not add up simply to  $1+1+1=3$ . In fact, when a child is submitted to several vaccines at the same time, the interactions among the 3 viruses are very complex and an amplified response is often given (by synergy). This was demonstrated in a study conducted in 1969 and confirmed in 1974, but was never followed up.

Dr. Wakefield concluded by stating that a specific transfer factor against these viruses would be ideal and by mentioning the beneficial and protective effect of melatonin in the chelation treatment for mercury.

This year, I would like to inject a more optimistic note and, without being over confident, I am pleased to mention some positive contacts with the administration of the research department of the Ministry of Health and Social Services. After two meetings, there is a desire to initiate research in autism modelled on the DAN protocol. It would consist of a phase of pure research phase (to continue what has already been done), followed by a more practical phase putting the protocol into application so that our children can benefit from medical exams as soon as possible. The next stage in this collaboration will be getting in contact with various organizations which are the main actors in the research. This approach is to be continued and we must never give up.

*All truth goes through three stages: first it is ridiculed, then attacked, and finally it is accepted as proof.*

**SCHOPENHAUER**

# Vaccines

*Autism Research Review International,*  
Vol. 14, No. 4, 2000, p. 1 et 2\*

*By Jean-Claude Marion*

We suggest that you read a resume of the latest research reports published by doctors **Singh** and **Wakefield** dealing with the possibility of an interaction between the MMG (measles, mumps, German measles) vaccine and the triggering of autism.

As we go to press, we have just learned that an epidemiological study published recently by the Boston University School of Medicine denied any possible link between these two elements. It seems, therefore, that the controversy is ongoing and that it is being fed by contradictory arguments. New research findings, revealed a few days ago, seem to give more weight to the Wakefield theory. We are awaiting their official publication. The debate that is being carried on can only help the introduction of a safe vaccine. For the good of children, it is to be hoped that the truth is served by flawless objectivity and that parents are informed of the existence or nonexistence of potential dangers. Another possibility being researched by DAN (Defeat Au-

tism Now) is related to the influence of heavy metals, and particularly of mercury on the metabolism and immune system of children. Mercury, sometimes contained in vaccines in the form of thimerosal or in other forms in the environment, is also a source of concern and controversy as to the role it plays in triggering the onset of autism. In this regard, an editorial by **Dr. Bernard Rimland** appears a little farther on.

We complete this column by asking you to give some thought to the article by **Dr. Wendell Weber**, which gives a preliminary and sketchy explanation of the disparity in reactions observed in various groups of persons to certain "aggressors". Why are autistic persons more sensitive to vaccines or heavy metals? Reactions seem to be calibrated in accordance with one's genetic profile. Interesting!

\* Rougeole, rubéole et oreillons

\*\* Defeat Autism Now !

## Autism and MMG vaccination

New studies conducted in the United States and England add more evidence to the potential existence of a link between autism and the MMG vaccination (measles, mumps, German measles).

Vijendra Singh, an American researcher, in a recent report, exposed new pieces of evidence

to support the notion of a link between the MMG vaccine and brain damage that could lead to autism.

The English researcher, Andrew Wakefield, the first scientist to have brought up, in 1998, the possibility of a link between the MMG vaccine and autism, told of his new discoveries that as-

sociate autism to certain intestinal inflammations that could be the result of these vaccinations.

Participating, in September 2000, in an international public convention on vaccination, Dr. Singh explained the results of a study based on blood tests performed on 140 children (80 autistic and 60 others who made up a control group). He showed that the autistic children had auto-antibodies to the basic protein in myelin and that, in 70% of autistic children, this was accompanied by a marked increase in the measles virus antibody. This picture differed from that observed in the control group. According to Dr. Singh, the auto-antibodies can attack the brain and alter the myelin envelope that sheathes the nerves. According to him, there is a rapidly growing amount of evidence that leads to the consideration of the auto-immune process in autism which, in many cases, could result in a form of damage brought on by the vaccine.

In another study, Dr. Wakefield and his colleagues report that a new variation of intestinal inflammatory disease has been found in a subgroup of children with developmental disorders.

Dr. Wakefield and his colleagues did ileocolonoscopies and biopsies on 55 autistic children and on 5 other children with other developmental problems. In almost all cases, the medical history clearly indicated that their behaviour had regressed significantly and that all, except one, had suffered from intestinal problems. The sample chosen was compared to a control group in good health and to another group of children suffering from ulcerative colitis.

The researchers noted an abnormality known as LNH or lymphoid nodular hyperplasia in 54 of the autistic children, but in only two of those in the control group. Biopsies of the ileum indicated the presence of another abnormality, reactive follicular hyperplasia in 46 of the autistic children and in only 4 of the 14 children with ulcerative colitis, whereas it was completely absent in children from the control group. Moreover, among the children suffering from developmental disorders, 53 suffered from chronic colitis, compared to only one in the control group. There were also 4 cases of inflammation of the ileum in the autistic group but none in the control group.

The researchers concluded that a specific pathology of the ileum and colon with endoscopic and histological characteristics was found in a sample of children affected by developmental disorders.

Before these latest publications, a study by Dr. Wakefield appearing in the *Lancet* in 1998, was the first attempt to link autism to the MMG vaccination. In his research report, Dr. Wakefield stated that, in a sample of 12 children who had exhibited abnormalities or intestinal problems and who had regressed to autistic behaviour, the symptoms had appeared in 8 of them in the weeks following the MMG vaccination. Later he reported similar results in 48 other children. His 1998 research led him to the conclusion that, because of certain genetic traits affecting their immune system, some autistic children are unable to support without harm the presence of certain viruses, probably even if they come from attenuated viral sources.

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\* Singh, Vijenda, presentation to the International Public Conference on Vaccination, September 2000.

And

“Enterocolitis in children with developmental disorders”, A.J. Wakefield, A. Anthony, S.H. Murch, M. Thompson, S.M. Montgomery, S. Davies, J.J. O’Leary, M. Berelowitz and J.A. Walker-Smith, *American Journal of Gastroenterology*, Vol. 95, No. 9 September 2000, pp. 2285-2295

# Mercury and vaccines

*Autism Research Review International*, Vol. 14, No. 4, 2000, p. 3

By Bernard Rimland

“Scientific rubbish!” That is how psychiatrist, Eric London, qualified what he had heard from parents and relatives of autistic children, even though some of these parents were medical doctors and reputed professionals in other fields. “If you were to present such opinions to a school of medicine, they would be thrown out the window” stated Dr. London.

The opinion so strongly contested by Dr. London, suggesting that some perfectly normal children may have developed a severe form of autism shortly after having been vaccinated with vaccines containing a strong quantity of highly toxic mercury, was presented by parents to a meeting of the *National Institutes of Health* last October. The conference on the role of environmental factors in autism was sponsored by the *National Institute of Environmental Health Sciences* (NIEHS).

Dr. London continued to ridicule this “scientific rubbish” and proceeded to explain that scientific progress can be likened to the building of a brick wall. “You begin with a solid foundation to which you add, very systematically, experimentally proven facts that can be inserted brick by brick in an orderly fashion.”

I energetically opposed Dr. London’s affirmation, claiming that his brick wall model gives a false and widespread picture of scientific progress. The model is useful for teaching science to beginners: it is the theory of small steps. It is not, however, the way in which scientific progress is achieved in the real world. I have already given my opinion orally and in writing on the brick wall theory. “For me, it’s a lot of nonsense! Almost four decades of full-time research have taught me that the crossword puzzle model provides a more accurate representation of how science progresses. Very often, the discovery of the right answer in one corner will prove that one that has already been set in another corner is wrong

and needs to be erased. There are at least as many old answers that are erased as new ones that get written down. The more important the discovery, the more promising the crossword puzzle approach appears to be.”

“The history of human progress is a chronicle of refuted authority.” This adage holds true particularly in the medical field. Historically, those who have made breakthroughs and discoveries leading to major changes in both theory and practice have been ridiculed and disdained by their contemporaries. The most illustrious names in medical science, including Semmelweis, Lister, Pasteur and Harvey in the past and, more recently, Abram Hoffer, the Shute brothers, Henry Turkel and Kilmer McCully, were all treated with scorn by their colleagues.

“Yes,” I replied to Dr. London, “what you heard this morning in connection with the damage caused by mercury contained in vaccines will probably be rejected wholeheartedly by medical schools. These schools have a long and sordid history of punishing those who introduce new ideas, particularly innovative ideas opposing beliefs that have long been held dear, like the one that claims that vaccines are harmless.”

Eric London and his wife, Karen, created the *National Alliance for Autism Research* (NAAR) in 1995. When, three years later, I published in the *Autism Review International* (ARR) a one-page editorial on the enormous increase and obvious prevalence of cases of autism, citing vaccines as a possible cause of the disorder, Eric London published a 4-page rebuttal in the NAAR bulletin. My reply was rejected.

As readers of the ARRI are fully aware, the considerable increase in the prevalence of autism is now well established and the role of vaccines in this growth is given more and more credence.

## The mercury factor

As early as 1965, we began to gather data from parents on various factors that could have caused or aggravated autism in their children. In 1967, we started to distribute a Form E3, a questionnaire, thanks to which we now have in our files data on approximately 10,000 recognized cases of autism.

One of the questions asked in the questionnaire dealt with the effects of the DPT (a triple vaccine like the MMG) on children. A number of parents mentioned during conversations and in letters that their child had been very negatively affected by the vaccine. Conscious of the high toxicity of mercury and of the fact that it might cause many of the symptoms of autism, we asked, in the same document, if the mother had had dental work during her pregnancy or if she had had silver fillings either put in or replaced. In both cases, there is a possibility that the mercury could reach the fetus.

Toward the end of the 1960's, my assistant, Dale Meyer, a graduate student, began to be interested in the possibility that mercury poisoning could be a cause of autism. She then wrote an article on *acrodynia and the pink disease*, which had always been a source of embarrassment for doctors since the end of the nineteenth century because, until the 1950's, no relationship between these diseases and mercury poisoning had ever been made. It was confirmed that *acrodynia and the pink disease* were caused by certain dental products and baby powders containing mercury.

Ten years earlier, I had read an article by Richard Moskowitz in which he stated that vaccines contained mercury, aluminum and formaldehyde, but, at the time, I ignored the possibility that mercury might be present in a sufficient quantity to cause problems. Knowing that the medical establishment, and, undoubtedly, pharmaceutical companies, were aware of the strong possibility that even a small quantity of mercury could cause damage, it seemed to me to be inconceivable that toxic doses of mercury could be found in vaccines. How naive of me!

The incredible reality appeared suddenly about one year ago. Parents who submitted their statements to the NIEHS conference did study the question more closely: **some children, in a single day, received doses of mercury 100 times (and even more) superior to the daily quantity deemed to be toxic by the American environmental protection Agency!**

Parents who assisted at the NIEHS conference coauthored the report exposing the relationship between mercury and autism. Salli Bernard, Lyn Redwood and Albert Enyati told of their children, who were perfectly normal until they became autistic following the administration of vaccines containing mercury. Stephanie Cave, a pediatrician, told the audience that the majority of the 400 or so autistic children she treated saw an improvement in their condition after various treatments and that chelation was, in her opinion, the most efficient procedure for evacuating mercury from the organism.

Dr. Kenneth Olden, director of NIEHS, and several of his colleagues who were present at the conference, were highly impressed by these results and they started their own research on the link between mercury and autism.

There are a number of protocols used by different physicians to evacuate mercury and other toxic metals from the organisms. Although the dangers connected with these methods seem to be unimportant, some harmful reactions could however occur. The *Autism Research Institute* (ARI) is currently preparing a meeting of experts who will enlighten us on the safest and most effective methods of treating mercury poisoning. The meeting is slated to take place shortly. The results will be published in the *Autism Research Review International* and on the ARI Web site at: [www.autism.com/ari](http://www.autism.com/ari)



# *Genetic profiles* *and* **DRUGS**



You state that the antibiotic given for your best friend's urinary infection caused you to have severe rashes all over your body? And that the hormone therapy used to fight your father's prostate cancer instead caused it to proliferate? You mention that the only medication capable of soothing your irritable bowel syndrome has just been taken off the market because five people died of side effects?

"Don't criticize the medication" says Dr. Wendell Weber<sup>1</sup>, a geneticist at the Michigan School of Medicine and professor emeritus of pharmacology at the University of Michigan. The real problem is probably in your genes.

"If physicians and patients do understand the influence of genes on health and illnesses, most have no idea of the harmful effects that medication can have on those who are genetically predisposed," explains Dr. Weber. "Genetic diversity contributes greatly to the diversity of reactions to drugs occurring in people."

A pioneer in the field of genetic pharmacology, Dr. Weber has devoted his career to the study of small genetic mutations called polymorphisms, which could lead to important variations in the reactions of people to drugs and to chemical products in the environment. A drug which helps one person may have no effect on another and may even be harmful.

At a time when the human genome project has reached a final stage, genetic pharmacology attracts a great deal of attention. This field could, in fact, enable doctors to prescribe safer and more effective drugs as well as therapies adapted to the genetic code of each patient.

On the occasion of the 2001 Seminar of the genome, held at the annual meeting of the American Association for the advancement of

science in San Francisco last February, Dr. Weber explained how genetic pharmacology has progressed over the past forty years. He also discussed the emergence of a related field, pharmaco-genomics, that analyses all the polymorphisms of the entire genome.

"There are millions of poly-morphisms in the human genome" he declared. "Fortunately, only a small number of them can influence the way in which people react to drugs and to substances in the environment. We have already identified many of them, and data from the human genome project should help us discover the others".

The poly-morphisms studied by Dr. Weber may be as seemingly insignificant as the substitution of a single amino acid in a gene, which is made of thousands of these acids. Just like other genetic mutations, poly-morphisms are part of our heritage and may be found in a single or in multiple genes.

A series of poly-morphic mutations produces abnormalities in the enzymes that metabolize drugs, whereas another group of mutations is linked to an unusual sensitivity to drugs. The poly-morphisms of genes involving receptor molecules can prevent drugs from crossing cellular membranes or may interrupt the chain of biochemical signals used by cells for communication.

Dr. Weber notes that "in our population, we note that the presence of several poly-morphic genes varies depending on ethnic origin." "For example, a condition involving sensitivity to primaquine is responsible for a reaction to certain drugs by many African, Mediterranean or Asiatic men. Another mutation in a gene is also responsible for an astonishing sensitivity of Japanese people to alcohol."

Other genetic poly-morphisms account for extreme sensitivity to certain foods, to the early onset of type I diabetes, to a severe heart ailment known as the congenital QT long syndrome, to a predisposition to asthma, to thrombophilia and to the inability to metabolize certain drugs like codeine, metabo-quant or antidepressants, a situation that can sometimes lead to dangerous overdoses.

According to Dr. Weber, the next challenge, which is quite daunting, will be to determine the effect of each of the poly-morphisms on individual proteins, enzymes and cellular receptors. "To do this we must perform a great deal of basic research. We will not be able to simply turn on a machine and wait for answers,"

Progress in bio-computer information and in the technology of the macroscopic display of DNA (deoxyribonucleic acid) that will allow for simultaneous observations of the activities of all genes, will be necessary before pharmacogenetics can live up to its full potential in the field of medicine, adds Dr. Weber. Physicians and pharmacists will also need avant-garde training to be able to provide their patients with personalized and appropriate treatments.

<sup>1</sup> *Wendell Weber is the author of two treatises on pharmacogenetics: "Acetylator Genes and Drug Response" (1987) and "Pharmacogenetics" (1997), both published by the Oxford University Press. The University of Michigan News Service, February 17, 2001.*

## Statistics and epidemiology

The number of cases of autism has grown tenfold in the United Kingdom

*By Jean-Claude Marion*

Over the last decade, the number of cases of autism has exploded much more quickly than anticipated, but the cause of the increase has remained a mystery for researchers. According to a British study to be published in April 2001, the number of children diagnosed with autism in 1999 was ten times greater than those counted in 1983.

The figures for the period covering the years 1983 to 1999 cited by the *Autism Research Unit* of the University of Sunderland are so high that researchers first doubted their accuracy. Different teams confirmed them, however. Let us quote, for instance, from an American study published in February by the *British Medical Journal*, analysing the period from 1988 to 1999, which states that new cases of autism are 7 times higher in 1999 than in 1988 (a rate of 40 autistic children per 10,000).

In another recent study, the *Autism Research Centre* of Cambridge University recognizes that in the county of Cambridge there is one case of autism per 175 young children (a rate of prevalence of 58 autistic children in 10,000).

According to Paul Shattock, director of the *Autism Research Unit* and vice-president of the World Autism Organization, a number of elements can be attributed to the cause of this increase. He mentions an improved diagnostic process, vaccinations and water and food pollution (pesticides, plastics and heavy metals). Furthermore, he abstains from excluding the possibility that the MMG measles vaccine could have an effect, although this has been questioned by several researchers and its harmful consequences excluded by the Health Department.

It is to be noted that a new study, published by the *British Medical Journal*, brushes aside any link between the MMG vaccine and autism. This research performed by epidemiologists from the Boston University School of Medicine, proposed as an argument that, since the number of children who received the MMG vaccine has remained stable throughout the years under study, it cannot be used to explain the explosive increase in the number of cases of autism during the same period.

Source: David Charles, Health Correspondent for the Times (2001, Times Newspapers Ltd) and others.

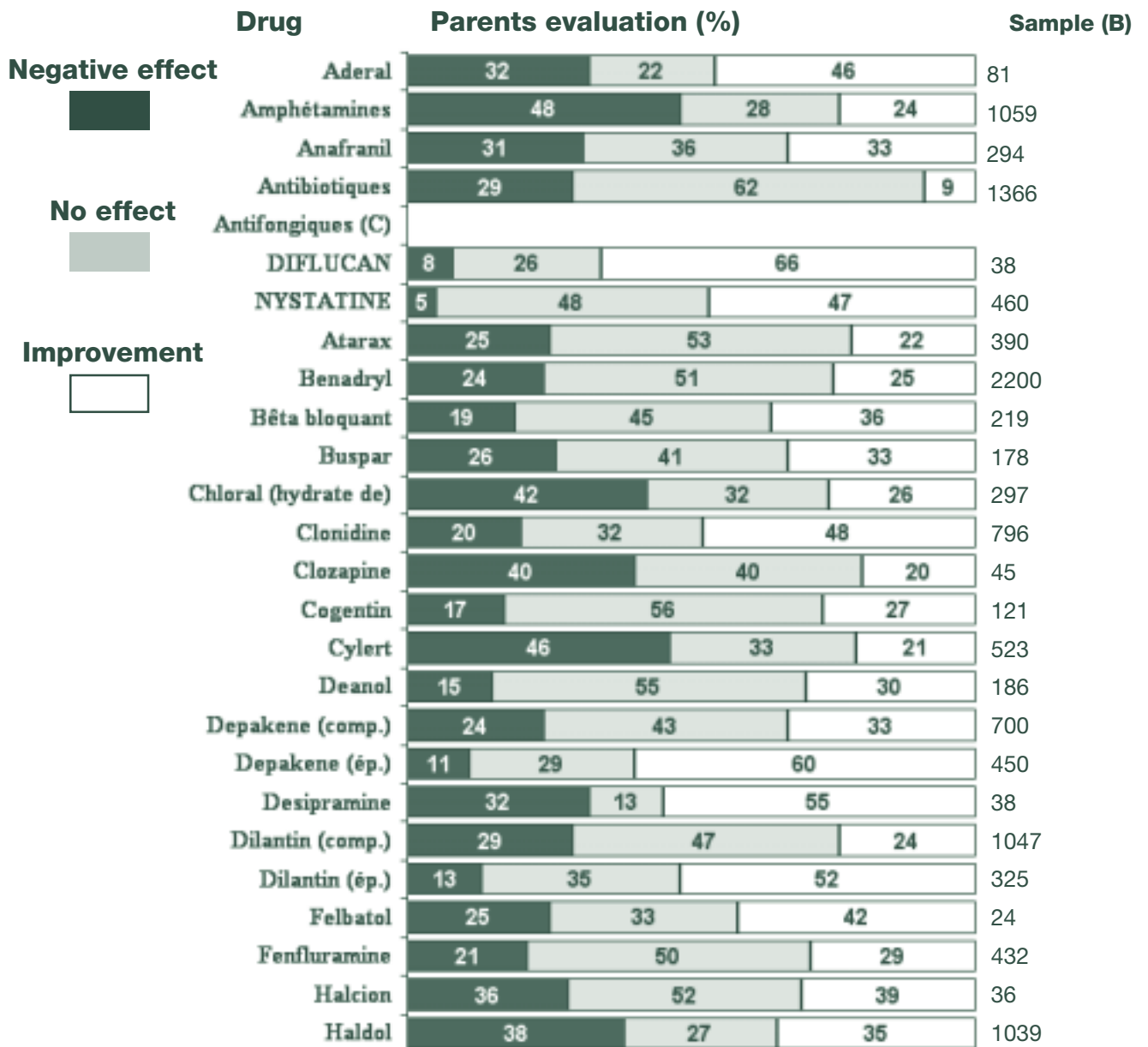
## Effectiveness of certain drugs and treatments

Source: *Autism Research Review International*, September 2000

Parents of autistic children are obviously an important source of information in judging the positive or negative effects of drugs or diets used to treat the disorder. Since 1967, the *Autism Research Institute* has been gathering reports from parents on different treatments and has introduced an evaluation grid to display the level of effectiveness or satisfaction for each item used. The graph contains 6 ratings or levels in three categories of effectiveness (negative effect, no effect, improvement). The following data were gathered from more than 18,500 parents.

Editor's note: Almost half the parents questioned noted an improvement in the condition of their child following the use of different vitamin supplements or diets regularly proposed for autism. These results are remarkable especially when compared to their opinions on the effectiveness of generally established drugs that often have serious side effects.

Note: In the case of drugs against epilepsy, the name followed by (comp) reveals effects on general behaviour, whereas the name followed by (ép) covers the effects on seizures.



Drug	Parents evaluation (%)			Sample (B)
Klonapin	21	29	50	86
Lithium	26	43	31	331
Luvox	17	29	54	41
Mellaril	28	38	34	1927
Mysoline (comp.)	46	38	16	120
Mysoline (antic.)	17	57	26	46
Naltrexone	23	43	34	169
Praxil	18	28	54	61
Phenergan	34	41	25	197
Phénobarbital				
COMP.	47	37	16	994
ÉP.	15	43	42	397
Prolixin	29	31	40	68
Prozac	31	32	37	697
Risperdal	14	30	56	124
Ritalin	44	27	29	3082
Stelazine	28	44	28	401
Tégréto (comp.)	23	45	32	1180
Tégréto (ép.)	11	33	56	613
Thorazine	36	40	24	863
Tofranil	31	37	32	597
Valium	35	42	23	728
Zarontin (comp.)	32	44	24	113
Zarontin (ép.)	17	53	30	66
Zoloft	32	30	38	103

Drug	Parents evaluation (%)			Sample (B)
Calcium (D)	2	59	39	522
DMG	7	50	43	3687
Acide folique	3	53	44	724
Mélatonine (E)	33	67		46
Vitamine B3	5	53	42	307
Vit. B6/Magn.	4	50	46	4059
Vitamine C	3	57	40	811
Zinc	3	54	43	453

Drug	Parents evaluation (%)		Sample (B)	
Candida	2	46	52	398
Feingold	2	48	50	527
En alternance	2	52	46	565
Sans chocolat	1	53	46	1156
Sans caséine	1	54	45	3989
Sans œufs	1	64	35	605
Sans sucre	2	52	46	3000
Sans gluten	1	58	41	2022

- A. "Negative effects" refers only to behaviour. Drugs, as opposed to food supplements, may cause health problems when taken over a long period.
- B. The sample (number of cases reported) is cumulative and may cover several decades. It does not necessarily indicate the present use of the drug (for example, the use of Haldol is rare today).
- C. Anti-fungicides are used to combat candida.
- D. The effects of calcium in the form of food supplements and not linked to dairy-free food regimens.
- E. Even though melatonin has a beneficial effect on sleep, it is possible that its use over the long term may have an influence on puberty.

It is to be noted that Ritalin, the drug used most often, helps only 29% of patients while the effects are negative in 44% of cases (based on the statements of 3,082 parents). The rate of satisfaction for vitamin supplements and diets is definitely superior.

# *The social integration of young Asperger patients: parents tell their stories.*

By Sébastien Boulanger

It is generally considered that the Asperger syndrome is a problem situated at the higher end of the autistic curve. Although the majority of Asperger children do not have speech or language problems, or mental retardation, and although some even have superior intelligence, they nevertheless show signs of important weaknesses with regard to the perception and comprehension of human relations and rules of society. Difficulties in communication, resistance to change and obsessive behaviour observed in young Asperger children often result in their being marginalised, or even stigmatized, by their classmates. Some teachers, often feeling helpless in the presence of pervasive developmental disorders, freely admit that the integration of an Asperger student into regular school is a major challenge for them. For parents, who have to deal with an unsatisfactory system, the load is no less heavy: late diagnosis, absence of real expertise, limited familiarity with available resources, ignorance of fundamental rights, lack of proven treatments, enormous financial considerations for special help in school. From now on, L'Express will devote a few pages of its regular bulletin to the **Asperger Topic**, providing readers with testimonies and recommendations which we hope will help various authorities to recognize this important syndrome and encourage them to develop appropriate strategies for dealing with them.

Just like young autistic people with intellectual deficiencies, Asperger children face social exclusion and also are poorly prepared for adult life. The implicit borderline - which is incidentally difficult to define - between autism, high functioning autism or the Asperger syndrome has an undeniable effect on the accuracy of the diagnosis and, ultimately, on the future possibility of dealing with the situation.

According to Michelyne, the mother of a young 17-year old Asperger, whom we met with three other parents "If someone mistakenly confuses those with Asperger syndrome with other categories of autism, for whom teaching methods are also debatable, there is a strong chance that these methods will not be right if they are not adapted to the real intelligence of the Asperger students. In fact, the later the diagnosis, the greater the chances of making an erroneous

decision" states Michelyne whose daughter Dominicke was diagnosed at the age of 12.

Michelyne's story is a good illustration of the obstacles facing parents of young Aspergers. Her daughter, Dominicke successfully completed her grammar school courses in a regular class with above average marks. "After the diagnosis, however, life was hell. A psychologist from my school board came to the house and had her pass an IQ test at the kitchen table. The test indicated that Dominicke was unable to put a spoon to her mouth unaided. Conclusion: intellectually deficient. Have the psychological characteristics of Aspergers been taken into account? This psychologist's report, along with the diagnosis of the Asperger syndrome, was enough, in spite of her eloquent school results, to justify her being placed, not in a special class, but in a school for those suffering

from mental retardation, where the majority of the students were Down's syndrome sufferers or others with moderate or profound retardation. It is not that I cannot understand the anguish associated with these degrees of mental disability, but this type of school was not the place for my daughter. You cannot imagine what I had to do to get her out of there and to have her brought back to classes where she could continue to acquire academic knowledge commensurate with her capacities. It took over a year of fighting before I succeeded and, even then, she was not placed in a regular class but in special classes, because authorities told me she would be in trouble in the regular stream. But she was in no trouble, on the contrary," continued Michelyne.

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*"Without a humane and friendly supporter to protect Aspergers from derision and to make them feel secure, real Aspergers rarely finish high school."*

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One of the major strengths of Aspergers is their intelligence, their special memory and their aptitude to preserve what they have learned. Of course, because of the disparity of symptoms and faculties of each one, the educational and support needs are varied for Asperger children. However, in view of their real capacity for learning, many people are convinced that there is no other option but to allow them to follow regular instruction with systematic coaching.

"The Asperger syndrome is not a disability, it is a condition. A blind person who falls in a hole without a cane and without a dog, is that a disability? We must show faith in the capacity for sustainable progress in these people, even though they are socially blind and need guide dogs to lead them through life," states Michelyne. It is therefore essential to understand their level of stress and to respect the limits each one can tolerate without becoming disorganized. "It is a major factor that requires supervision beginning immediately after the diagnosis, especially if it was made before school age, by a multidisciplinary team: specialists in neurology, occupational therapy, neuropsychology, special education, in the Asperger syndrome, teachers, etc. The child's level of development must be ascertained; some unacceptable behaviour must be corrected, and he must be helped to adjust his limitations to life in a group and, in time, be taught how to deal with the dis-

cipline imposed by schedules so that he may adapt more easily. "These children have to learn how to know their own emotions and to articulate their thoughts, using the proper words. People have to deal with them in a very concrete and visual manner, by showing pictures and proposing various scenarios to introduce them to a social life. In extreme cases, the sign language of the deaf might be useful.

Asperger students often behave eccentrically; they find it difficult to prioritize and are often called to order by their classmates with sarcasm. It is easy to imagine the difficulties they meet during adolescence, when they sometimes feel they deserve the negative treatment they get. The basic role of the support people would be to intervene in class. Without a humane and friendly supporter to protect Aspergers from derision and to make them feel secure, real Aspergers rarely finish high school.

Of course, it is important to find the necessary resources. Often dismayed by the diagnosis, many parents suffer from a flagrant lack of information and indifference on the part of authorities. When the child psychiatrist diagnosed my son with Asperger when he was seven and a half years old, it was as though I saw him with a plant growing above him. I asked the psychiatrist a question and she answered: *I've just told you, must I repeat myself?* I was completely devastated, says Jacqueline, the mother of Charles. "Nobody tells us what to do, where to go for help. A lot depends on the personality of the psychiatrist. Even at school, nobody mentioned Barbara-Rourke." The maze surrounding available government help also leaves Charles' father skeptical. "When I asked for help from the government, I was asked what percent of the day our son was affected by the Asperger syndrome!" says André.

"Parents often find out about their options very late. Presently, all is well at Barbara-Rourke. The educator, in one sentence, made me understand what the Hôtel-Dieu du-Sacré-Coeur was unable to convey to me in three years. *Your child is socially blind!* According to Martine, whose son Émile is accompanied 21 hours a week in an alternative high school class, the educator can make all the difference with regard to instruction. "There is a way to talk to Aspergers. There are rules to be followed. In fact, the attitude of other students changed considerably when the professor explained in class what the Asperger syndrome was. Today, Émile is respected in his environment. It is essential that

people be made aware of what the Asperger syndrome is and that those affected have competent support persons. As well, schools, doctors and hospitals must accept advice from one another, and especially forget about power struggles.”

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*“ Teachers often demand that Asperger students adapt to their milieu, when they are the ones who should be adapting to the Asperger milieu. ”*

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“Yes, information is needed, but there is also a need for competent expertise in many quarters” adds Jacqueline. “Teachers often demand that Asperger students adapt to their milieu, when, they are the ones who should be adapting to the Asperger milieu. The school must stop being narrow-minded and must also adapt. Morality courses for Charles are useless” she says. “Seeing an intelligent child like mine and wondering whether he will live in society or in a ghetto. My son on Welfare with all his potential. No thanks! We want the diagnosis to be given by people with heightened awareness and told by doctors: you have this or that at your disposal to lead your child to a better adult life.”

The prospects of employment as an adult are at the core of an important debate which must be considered some time soon. “In Québec, the prospects of work for an Asperger who has completed his studies are just about nil” declares Michelyne. “For others, the only options are jobs in a protected environment, where in addition to a welfare cheque, they receive a meagre \$5.00 a day, the maximum they are entitled to if their cheques are not to be cut, for bagging items, sticking labels or for a stint in small businesses where they will never be hired anyway.”

Besides never being able to get a real job, Aspergers, who are nevertheless very reliable, efficient and honest in their work fall into the category of welfare recipients. “Why can’t they simply be entitled to a disability pension which would allow them at least to improve their social condition a little” asks Michelyne.

“I must say that my observations are sad. The day we receive the diagnosis of autism or Asperger, as parents, we think that doctors will have some tools to give us. But no . . . For most of us, we proceed in a whirlwind of unknowns

where, most of the time, we are left on our own to deal with this new reality. For lack of a consensus in the health sector and, also alas, among parents, we are led to take, each on one’s own, some risky decisions. We should consult with one other, and urge child psychiatrists to get together, review their diagnoses and make a **coherent** definition of all autistic characteristics. It is through them that all kinds of appellations originate and it is therefore up to them to establish some kind of coherence” declares Michelyne.

## The Asperger syndrome: a disability or a difference ?

*Autism Research Review International*, Vol. 14, No. 4, 2000, p. 5

Simon Baron-Cohen, a British researcher, arouses controversy by suggesting that the Asperger syndrome or high-functioning autism, should be considered a *difference* rather than a *disability*.

According to Baron-Cohen, "In this world where all are supposed to be social individuals, those affected by the Asperger syndrome, or high-functioning autistic persons, are considered to be disabled," However, he notes, the talent for detail in an autistic person in fields such as mathematics, computer science, filing, music, linguistics, manual work, engineering or science, is an asset rather than a disability. While aware that autistic persons suffering from mental retardation or from an important language alteration, are obviously dysfunctional, and that Aspergers manifest problems in dealing with everyday life, Baron-Cohen suggests that high-functioning autism should be defined as a *different* cognitive model whose difficulties largely result from modern society's needs, where a considerable number of social interactions are needed.

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*"The autism genes could confer an important advantage in fields where an understanding of how objects function is more important than an understanding of people."*

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The researcher is also intrigued by the different factors that influence the increase in the number of high-functioning autism. According to him, from the moment society becomes depen-

dent on technology, genetic selection should begin to increasingly favour individuals who manifest a thought scheme *a pattern of thought directed toward objects* as do autistic persons. He stated that this type of change will first be observed in communities where many people work in the field of technology. Baron-Cohen mentions also that a recent survey conducted with scientists at Cambridge University reveals increased familiarity with autism, which is an initial indication that such effects could occur.

In a previous treatise, Baron-Cohen had discovered that the fathers and grandfathers of autistic and Asperger children were twice as likely to have worked in the field of engineering as parents of a control group. A more recent survey addressed to students at Cambridge indicated that those who specialize in science have six times more autistic persons in their families than those who choose social sciences, but that no similar increase is found associated with Down's syndrome, manic depression or schizophrenia. According to Baron-Cohen, these observations suggest that the autism genes could confer an important advantage in fields where an understanding of how objects function is more important than an understanding of other people.

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\* "Is Asperger syndrome/high-functioning autism necessarily a disability?", asks Simon Baron-Cohen, *Development and Psychopathology*, Vol. 12, 2000, pp. 489-500.

# Autism and amygdala abnormalities

*Autism Research Review International*, Vol. 14, No. 4, 2000, p. 2 et 6\*

Recent research indicates that some symptoms of high-functioning autism may be linked to amygdala abnormalities. The amygdala is a complex system of almond-shaped pockets that form part of the brain structure and are located inside each temporal lobe.

M.A. Howard and his colleagues recently conducted a study on 10 subjects suffering from high-functioning autism and compared them to a control group of individuals of the same age, sex, and verbal I.Q. According to the researchers, neuropsychological tests revealed that the subjects affected by high-functioning autism showed social perceptions similar to those observed in patients suffering from lesions in the amygdala, notably a failure to decode facial expressions, a limited perception of the direction in which another person is looking and a weak memory for faces.

Howard and his colleagues also affirm that magnetic imagery tests show a marked increase in the amygdala volume in autistic persons. These observations are in agreement with reports that show an abnormally large head in many autistic persons and with postmortem examinations showing an increase in the density of amygdala cells in autistic individuals. The searchers suggest that certain cases of high-functioning autism could be provoked by an inadequate process of synaptic reduction and apoptosis during the development of the brain in very young children. **(Editor's note: Apoptosis is a particular form of programmed destruction of cells accompanied by characteristic modifications in cellular morphology and physiology.)**

They declare: "We believe that the increase in the volume of the amygdala could indicate a less than optimal functioning of the brain structure, thus causing some deviation in social perception."

They note, however, that amygdala growth has also been reported in patients suffering from bipolar problems (manic depression) and that these observations are perhaps not specifically related to high-functioning autism. Prudence is therefore very important.

In a related research, H.D. Critchley and his colleagues state that magnetic resonance image scans on adult autistic patients indicate that, contrary to the control group, they do not activate the cortical facial area when expressions are to be evaluated. The tests also demonstrate that the left amygdala and cerebellum regions are not activated when there is a manifestation of conscious or unconscious emotions through facial expressions. **(Editor's note: In studies on the brains of autistic persons, abnormalities of the cerebellum are invariably found).**

Researchers conclude that individuals with high-functioning autism present biological differences when compared to a control group when they express emotions facially, both consciously and unconsciously. According to them, it is highly probable that these differences have a neurodevelopmental origin.

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\* "Convergent neuroanatomical and behavioural evidence of an amygdala hypothesis of autism," M.A. Howard, P.E. Cowell, J. Boucher, P. Broks, A. Mayes, A. Farrant and N. Roberts, *NeuroReport*, Vol. 11, No. 13, September 2000, 2931-2935.

And

"The functional neuroanatomy of social behavior: changes in cerebral blood flow when people with autistic disorder process facial expressions," H.D. Critchley, E.M. Daly, E.T. Bullmore, S.C. Williams, T. Van Amelsvoort, D. M. Robertson, A. Rowe, M. Phillips, G. McAlonan, P. Howlin, and D.G. Murphy, *Brain*, Vol. 123, Pl. 11, November 2000, pp. 2203-2212.

# Fatty acids and autism

*Autism Research Review International*, Vol. 14, N° 4, 2000, p. 6\*

There is more and more evidence suggesting that there is a link between the abnormalities in the cycle of fatty acids and certain psychiatric disorders, such as hyperactivity, depression and schizophrenia. Recent studies suggest that abnormalities in the metabolism of fatty acids could also play a role in autistic spectrum disorders.

J.G. Bell and his colleagues report that an examination of the red globules of a patient with autistic spectrum disorder reveals lower percentages of highly unsaturated fatty acids (HUFA) as compared to samples from a control group. In particular, abnormally low levels of docosahexonic (DHA) and arachidonic (ARA) acids are detected. In addition, the percentage of HUFA in red globules decreases markedly when the sample is kept at a temperature at which other samples remain stable. According to researchers, similar facts are noted in individuals suffering from schizophrenia.

They conclude that “These data suggest that, for a significant number of patients suffering from schizophrenia and autistic spectrum disorders, the HUFA in cell membranes are unstable compared to those in control groups.”

According to Bell and his colleagues the HUFA play a major role in the functioning of the synaptic link between neurons. They state that HUFA abnormalities “could lead to an alteration in neural structure and function.” They also note that male rats need higher levels of HUFA than female rats. The deficiencies noted in these indispensable HUFA, which could affect males more than females, could explain the sexual ratio (4 boys vs one girl) in autism.

Researchers also noted that the DHA and other fatty acids helped modulate electrical discharges coming from neurons and “that a fatty acid deficit could increase the predisposition to epileptic seizures occurring in many autistic patients.”

The Bell team pointed out that individuals with autistic spectrum disorders are also often subject to inflammation of the skin, intestinal infections, sleep cycle problems, weakened immune system, unusual variations in body temperature and problems in the balance of electrolytes. According to the researchers, “All these infections may occur because of abnormalities in metabolizing fatty acids, particularly in metabolizing those associated with the production of eicosanoids.\*\*

## HUFA deficiencies linked to dyslexia

In a related research project, Jacqueline Stordy presents evidence of a link between a deficiency in fatty acids and dyslexia.

In an initial study, Stordy and her colleagues measured the functioning of the rods in the retina of children, which rods have a high concentration of DHA (docosahexanoic acid). Comparing the function of rods in 10 young dyslexic subjects with 10 from a control group, the researchers discovered that dyslexics had a reduced adaptation to weak light, symptomatic of improper functioning of the rods. In a separate study, Stordy and her team administered a fatty acid supplement to 5 dyslexics and to 5 persons from the control group. The supplement (fish oil rich in DHA) was ad-

ministered over a period of one month. The control group showed no change in adaptation to weak light whereas this supplement resulted in a marked improvement for dyslexic subjects.

In still another study, researchers assessed the effects of a fatty acid supplement on the coordination skills of dyslexic children. The 15 subjects in the study all had markedly diminished motor skills, including equilibrium, manual dexterity, and the ability to play ball. After a four-month course of supplements, these skills showed great improvement.

The researchers noted that other studies show a link between a fatty acid deficiency and behavioural problems in primates as well as in young male humans. They claim that the results of their studies indicate “that there are, without any doubt, advantages in providing LCPUFA (long chain polyunsaturated fatty acid) supplements to older children with specific learning problems.”

## **Food supplements and bipolar disorders.**

*Autism Research Review International*, Vol. 14, No. 4, 2000, p. 4\*

**According to some Canadian researchers, food supplements could reduce or eliminate the need for drugs for individuals suffering from bipolar disorders. Bipolar disorder or manic depression can sometimes occur along with autism.**

Bonnie Kaplan and Steve Simpson conducted an open study on 10 men between 20 and 46 years old. During six months, these men were given a food supplement consisting of 36 ingredients including vitamins, minerals and additional antioxidants.

The researchers noted that symptoms exhibited by the subjects were lowered by more than 50%, on average, compared to the symptoms habitually observed when they were being treated with drugs. Participants were able to reduce their medication by approximately one third.

The researchers claim that “In some patients, supplements completely replaced psychotropic drugs, and they are doing very well.” The only side effect reported was slight temporary nausea.

Although skeptical at the start of the study, Kaplan states that “The results are absolutely astonishing”. The researchers are now undertaking another study on food supplements to be conducted on 100 subjects chosen at random with a placebo control.

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\* “Red blood cell fatty acid compositions in a patient with autistic spectrum disorder: a characteristic abnormality in neurodevelopmental disorders?” J.G. Bell, J.R. Sargent, D.R. Tocher, and J.R. Dick. *Leukotrienes and Essential Fatty Acids*, Vol. 63, No1/2, 2000, pp.21-25.

And

“Dark adaptation; motor skills, docosahexaenoic acid and dyslexia,” B. Jacqueline Stordy, *American Journal of Clinical Nutrition*, Vol. 71, No.1, January 2000, pp. 323-326.

\*\*Eicosanoids are molecules derived from arachidonic acid (HUFA). These molecules regulate, to a large degree, body processes, and a concentration which is either too high or too low could cause physical or mental problems.

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\* *UniSci daily University Science News*, October 9, 2000.

# Risks associated with *antipsychotic* drugs

*Autism Research Review International*, Vol. 14, No. 4, 2000, p. 4\*

A thrombosis followed by an embolism occurs after the formation of abnormal blood clots in blood vessels. Potentially fatal complications can occur if these clots spread to the lungs. A recent study appearing in the *Lancet* reports that the administration of antipsychotic drugs greatly increases the risk of thromboembolism in men and women less than 60 years old.

In a group of more than 29,000 users of antipsychotic drugs, G.L. Zornberg and H. Jick identified 42 individuals who had suffered from venous thromboembolism with no other identified cause. Comparing these subjects to a control group of 172 persons, the researchers discovered that regular exposure to conventional antipsychotic drugs resulted in a sevenfold increase in the risk of venous thromboembolism.

According to the researchers, weaker antipsychotic drugs, such as chlorpromazine (Thorazine) and thioridazine (Mellaril) were more widely associated with embolism than other more powerful drugs such as haloperidol. In an attached article, Victor Tapson asks insistently that doctors stop considering chest pains or indigestion as signs of anxiety but rather as possible symptoms of thromboembolism.

In a related study, Swedish researchers linked 12 cases of thrombosis (5 of which were fatal) to the use of clozapine (Clozaril), an antipsychotic drug. In this last-mentioned study, as in the one by Zornberg and Jick, the likelihood of such a side effect appeared to be greater during the first months of treatment.

## InfoTED

(Information on Pervasive Developmental Disorders)

Created in 1996 by Mr. Peter Zwack, professor at UQAM, and former president of the SQA, InfoTED is a French language discussion forum available free of charge focussing on autism and pervasive developmental disorders. This dynamic information venue brings together people from various countries and from all social spheres, including professionals, those affected by a pervasive developmental disorder, parents and relatives of autistic persons or students. InfoTED is a medium promoting solidarity and the sharing of new ideas and common experiences. A goldmine of practical tips for all who share the same daily concerns!

### To register

You need only send an E-mail to [listproc@uqam.ca](mailto:listproc@uqam.ca) Type *inscription* in the Subject line and the following text in the body of the message: subscribe infoTED first name surname (for example, if your name is Jean Tremblay: **subscribe infoTED Jean Tremblay**). You will then receive a message of confirmation. Once your registration is complete, send your messages to: [infoTED@uqam.ca](mailto:infoTED@uqam.ca)

\* "Antipsychotic drug use and risk of first-time idiopathic venous thromboembolism : a case-control study", G. L. Zornberg and H. Jick, *The Lancet*, Vol. 356, No. 9237, October 7, 2000, pp. 1219-1223.

and "Thromboembolism, five deaths associated with clozapine use", *Reuthers Medical News*, March 31, 2000.

and "Risk of venous thromboembolism with use of antipsychotic drugs", Victor Tapson, *The Lancet*, Vol. 356, No. 9237, October 7, 2000, p. 1206.

# How to protect an autistic person

By Jean-Claude Marion

The vulnerability of an autistic person, as witnessed in daily life and in the lack of adequate services to provide him with greater autonomy, requires the introduction of legal methods (or others) for his protection. We will review some mechanisms which could prevent the exploitation of autistic subjects: protective agencies, the Public Curator, a recognized defence association, l'Office des personnes handicapées (Office of disabled persons), and the lodging of complaints. We will end by repeating that the Société québécoise de l'Autisme (SQA) also has an important role to play in the defence of autistic persons.

## Services for the protection of autistic persons

### General provisions

Governments have established a set of legal stipulations for the protection of disabled persons or, more specifically in our cases, autistic persons. For the present purposes, we call these stipulations Protection Services. They have been designed mostly for those who are 18 years old or older, but there does exist a form of tutelage for minors. The services are established by a tribunal and may be in the form of a **counsellor to a major person**, (or tutor to a minor person), **tutelage**, or **guardianship**.

The **counsellor to a major person** is named by a tribunal and his mandate is to help a disabled person with certain complicated administrative tasks (contracts, sales, etc.). If the disabled person is younger than 18, this helper will be called a tutor to a minor person and will be entrusted with the management of his effects until he reaches the age of majority.

**Tutelage** protects a person who is partially or temporarily incapable of assuming his own protection or that of his goods or rights.

**Guardianship** is reserved for the most severe cases. It is the service which was established to protect a person considered as definitely and totally incapable, i.e., one who, on a permanent basis, cannot look after himself or manage his affairs.

### Practical information

It is important to note that a protection service is not required as long as an autistic person is autonomous and responsible. However, if such a person is unable to assume responsibility for managing his or her affairs, it would be advisable to ask that a protection service file be opened. A responsible agent will be appointed to represent the autistic person on a continuous basis.

## Procedures to be followed

### If an autistic child lives with a family

- Submit a request to the Superior Court through a lawyer or notary of your choice for the opening of a file. The request may be made the year before the person reaches majority (18 years) even though a judgment will take effect only when the subject is 18.
- The request must be accompanied by a medical or psychosocial evaluation completed by a health professional (usually a psychiatrist). The composition of a family council consisting of at least seven relatives or close relations of the autistic person to be protected must also be communicated to the tribunal authorities.
- The members of this council will be called to appear before a notary or a judge of the Superior Court to give their views on the need for a protective service, on the type

of protection requested and on the choice of a counsellor, tutor or curator.

- The autistic child will have the opportunity to give his point of view on the validity of the request and on the choice of the person who will look after him and his goods. The tribunal or a representative thereof will meet him personally. The meeting will usually take place in his home or in a familiar place in order to prevent useless discomfort.
- The tribunal takes into consideration the opinion of the family council and medical and psychosocial reports. It is, however, not bound by the request and may decide on a different type of service from the one requested.

### **If the autistic person is in an institution**

- If an institutionalized child needs help or representation for the exercise of his civil rights, the director general of the establishment sends a report to the public curator with a copy to the child.
- The report includes a medical or psychosocial evaluation. It deals also with the nature and degree of inaptitude of the child, the extent of his needs and the pertinence of establishing a protective service. The director general of the establishment informs those who should be informed (usually the parents) that he has transmitted the report to the public curator.

## **The Public Curator**

### **General provisions**

The Public Curator's office is an organization formed mainly to deal with people who are incapable of expressing their will and unable to represent themselves. It is an organization for protecting and directly representing persons under the public protection system, to administer their goods and to assume a role of supervision over the legal representatives of persons under this regime. It is under the direction of a civil servant (the Public Curator) named by the Québec Government and given the representation and protection mandates mentioned above. It is also to be noted that the Public Curator is responsible for unclaimed goods entrusted to him by the law and the civil code (estates, goods from dissolved companies, goods belonging to owners who cannot be found, etc.)

### **Legal representation**

In a case where no relative or relation can or wishes to accept responsibility for a disabled person, the Public Curator may, by a decision of the court, become the tutor or guardian, depending on the degree of disability. Then, through an employee (called "responsable-clients"), he will look after the best interests of the person within the limits of responsibility imposed by the Court.

With the help of a team of professionals, the "responsable-clients" will see to the well-being of the person represented by the Public Curator. If the disabled person cannot do it himself, he will take the necessary steps to find lodging for him and to obtain any medical care that could be needed at some time in the future. In accordance with the law, he will constantly see that the protection service is adapted to his situation. If the person is obliged to deal with the law (sale of buildings, lawsuits, etc.), the "responsable-clients" may act in his stead. In short, he manages the goods of the person and pays his expenses from any revenues the person receives.

### **Rules and obligations of the tutor, curator or counsellor (private)**

### **Assistance and supervision**

In the case of disabled persons for whom the court has chosen a tutor or a guardian from the family or relations, the Public Curator makes sure that the person who is the legal representative of the disabled person, looks after his moral and physical well-being and the management of his goods in an acceptable fashion. The Public Curator also offers representatives a help service to assist in decisions that must be taken on behalf of those for whom they are responsible. This service extends to counsellors to a major and to representatives.

### **Practical information**

For further information, please consult the office of the Public Curator in your area. The Montréal and Québec offices are the following:

#### **Montréal region**

600, boul. René-Lévesque Ouest, suite 500  
Montréal (Québec)

H3B 4W9

Tel.: (514) 873-407 or 1-800-363-902

E-mail: [comm@curateur.gouv.qc.ca](mailto:comm@curateur.gouv.qc.ca)

## Québec region

1305, chemin Sainte-Foy, 1<sup>st</sup> floor,  
Québec (Québec)  
G1S 4N5  
Tel.: (418) 643-4108 or 1-800-463-4652

## Association pour la défense des personnes et biens sous Curatelle publique (A.D.P.B.C.P.)

### (Association for the defence of persons and goods in the care of the Public Curator)

This independent organization was founded in 1995. Its mission is to inform the public and to ensure that the rights of clients of the Public Curator are respected. More than 12,000 people in Québec (50% of whom are seniors) and goods of an estimated overall value of \$200,000,000 are managed by the organization. The organization is nonprofit and offers free services. Among these services are telephone assistance, conferences and videocassettes, help in completing a disability request on a form and support for those seeking to lodge a complaint against the Public Curator. The organization also collaborates in the case of inquiries conducted by the Citizen's protection agency and the Auditor General of Québec. In short, it wants the public to know that it is important to be well informed.

## Practical information

To take advantage of the free services of the A.D.P.B.C.P., dial (514) 486-0428 or write to the following address:

**Association pour la défense des personnes et biens sous Curatelle publique**  
Complexe de santé, Reine Elizabeth  
1075, rue Northcliffe, suite 307  
Montréal (Québec)  
H4A 3K6

## L'Office des personnes handicapées du Québec (OPHQ)

### (Québec Office for disabled persons)

The OPHQ is a government organization for promoting services to meet the needs of disabled persons, for watching over their interests, promoting their academic, professional and social integration.

## Practical information

For information, communicate with the regional office closest to you or to the central office:

## L'Office des personnes handicapées du Québec (OPHQ)

309, rue Brock  
Drummondville (Québec)  
J2B 1C5  
Web site: [www.ophq.gouv.qc.ca](http://www.ophq.gouv.qc.ca)

## Other methods of protection and the lodging of a complaint

In the province of Québec, Law 120, when respected, has the power to protect all disabled persons and particularly autistic persons, since it addresses the protection of the rights of clients of health services and social services. It stipulates, among other provisions, in article 5 that "every person has the right to receive adequate health services and social services from persons that are scientific, human and social, on an ongoing and personalized basis."

In each of the sixteen regions in Québec, the offices of the community organization Centre d'action bénévole du Québec inc. (CABQ) were mandated to help and accompany, on request, a client of the health and social services establishment who wishes to lodge a complaint on the services he received or should have received.

The complaints may deal with the services of a CLSC, a hospital centre, a group home, or long term care establishment, a centre for the protection of children and young people, a rehabilitation centre or a community centre. The CABQ which is an assistance and support association may play a support role for those who wish to lodge a complaint with the following authorities: public or private establishments, the regional Board and the Complaint Commission. The involvement of community help organizations must be accessible, confidential and free of charge.

## Practical information

Procedures for lodging a complaint :

- You may complain personally or call upon the CABQ.
- It is preferable to know the name of the person in charge of claims in the establishment to which the complaint is addressed. Your letter should include the following elements:
  - name and number of file (optional)
  - the event or other situation about which the complaint is being made

- date and description of the event
- name of companions or witnesses
- results or remedial action expected from the complaint
- signature, address and telephone number
- If the CABQ helped with drafting the complaint, this must be shown, so that a copy of all correspondence is addressed to you.
- The complaint may be made orally. It will be treated in the same fashion as a written one.

Obligations of the establishment upon receipt of a written or verbal complaint about the services that a client received or should have received.

The person in charge of dealing with complaints at the establishment in question must:

- provide assistance to the client who needs it and allow him to present his observations;
- give him a written notice indicating the date on which the complaint was received;
- examine the complaint within 45 days of its receipt and advise the client of the conclusions he has come to and the pertinent justifications.

If the client disagrees with the conclusions, or if the 45-day deadline is not met, or again if the establishment refuses or ceases to examine the complaint, the client may then address a complaint to the Régie régionale (Regional Board) and to the Commissaire aux plaintes (the Complaint Commissioner).

For further information, consult the following Web site: <http://www.plaintes-sss.gouv.qc.ca>

### **La Société québécoise de l'autisme (Québec Autism Society)**

The main objective of the SQA (and its affiliated chapters) is to promote and to defend the rights and interests of persons suffering from autism and pervasive developmental disorders. Composed mainly of parents of autistic persons facing the problems associated with their disability, on a daily basis, it can easily direct its interests to solving practical problems and developing expertise in ensuring that autistic people retain their dignity and gain autonomy.

The SQA coordinates provincial aid measures and favours the propagation of research and scientific findings which could have an impact

on the treatment of autism. In addition, by insisting on the quality and appropriateness of services in areas such as diagnosis, education and social life, and in inciting government authorities to promote their viewpoints, it can legitimately claim to be playing a major role in the protection of autistic persons.

### **SQA Web Site**

The Québec Autism Society urges you to consult its Web site on a regular basis. It is an important source of documentation for parents, as well as for persons in the health, education and social service departments and also for the general public. All will find important information given in layman's terms, as well as regular reports on the progress of medical research in the field of autism. By making it easy to access information on all available autism resources in every region of Québec, the SQA pursues, without respite, through its Web site, its objective of defending the rights and interests of persons affected by autism or other pervasive developmental disorders, so that they may enjoy a life with dignity, as well as quality services and the greatest possible autonomy.

The SQA hopes that, in this way, it can provide efficient coordination to its affiliated regional societies and autism experts working in various fields: membership, management, the organization of common activities, services, methods of funding, and others. The SQA Web site, which is French, is a veritable goldmine of information, unique because of its scope, already known and appreciated (almost 5,000 hits on our home page, corresponding to more than 250,000 clicks in our various columns, were recorded by our server in February 2001). It makes a valuable contribution to the cause of autism and to the notoriety of the province of Québec in this field. We wish to thank all who have visited any of our articles (knowledge, regional news, scientific updates, online training program, etc.) and who provide input to our discussion forum.

<http://www.autisme.qc.ca>

## Reaction to the conference

### *Do vaccines cause autism ?*

Introduction by Marie Langevin

On February 8, 2001, at the Centre Hospitalier de l'Université Laval (CHUL) there was a conference on the hypotheses of a causal link between the MMG vaccine (measles, mumps, German measles) and autism. The conference, addressed to the hospital staff, was introduced by Dr. François Boucher, a pediatric infection specialist. The presentation by Dr. Boucher and the comments by the guest speaker, Dr. Jacques Thivierge, claimed to be objective. Unfortunately, the conference was rather more in line with certain knee-jerk reactions by the world of science to what is seen as "a disturbing hypothesis," not only for existing medical authorities, but also for the pharmaceutical industry. The reporting of facts and the medical explanations all were tainted with an unfavourable stand with regard to the works of Dr. Andrew Wakefield from the London Free Hospital. There was a rapid bird's eye view of the situation. In fact, to our knowledge, several elements in the debate were hidden while others were presented in an incomplete, even erroneous fashion. This is an indication of the colossal undertaking required to change an existing paradigm, and to instill the open mindedness needed to recognize autism as a physiological disorder triggered by environmental factors. Further to this conference, Mrs. Marie-Christine Destison, who was present at the conference, forwarded a written reply to Dr. Boucher. Her response is published here.

Dear Sir,

I was very disappointed in your presentation, not because you denigrated Dr. Wakefield's work (I had expected that), but because I thought you had yourself made a study of the subject. I now realize that you are a scientist who does not know very much about autism and that your exercise consisted in judging the validity of the content of every one of the studies. Lining up events and scientific studies and making judgments on the pertinence of each is easy but very sterile and unproductive when it comes to advancing our cause.

I know point by point all the chronologic sequence of events which you mentioned. Unfortunately, you omitted several facts that shed important light on their credibility. First of all, at the Washington convention, Dan Burton, senator and grandfather of a young autistic boy (not a little girl) asked this question at the end of the session: "Dr. Wakefield, Dr. O'Leary, Dr. Singh, are you prepared to present the results of your research to a group of independent researchers?" The answer was YES. "Dr. Taylor, are you prepared to present the results of your study to a group of independent researchers?" Answer: "Uh,uh, no . . . I don't know, I have to ask my superiors . . ." Since then, a law ordering the discontinuation of thimerosal in vaccines was passed (another problem which was not raised: mercury derivatives contained as preservative agents for the vaccine).

You also were silent about the conflict of interest involving most of the authors of pro-vaccine studies, since the majority of them are named, more or less directly by the pharmaceutical industry and by government bodies promoting vaccination programs or, even worse, they hold shares in the pharmaceutical industry. The Peltola study on the safety of the MMG vaccine was funded by MERCK.

You also omitted informing the audience that Japan had abandoned combined vaccines seven years ago. It would be interesting to know why?

There has been no satisfactory study on the long term safety of vaccines. Some scientists even admit that they do not know how vaccines really work. Some, and not the least of them, claim that the MMG should never have been put into circulation.

The omission of these important facts attests to the fact that you had already taken sides and opted for the comfortable stand. Your facile criticism was given in a bantering tone, but the subject is serious.

Have you ever examined an autistic child? Dr. Wakefield has. Not only one, but hundreds of autistic children. Have you ever asked yourself questions about the digestive abnormalities observed in our children? Dr. Wakefield (together with other brave physicians, who are also being contested), who had no real personal cause to look after the medical treatment of autistic children, did ask himself questions, when faced with repeated histories of cases of regressive autism with digestive problems. **He put his career at risk, not because he had discovered evidence which is not politically correct, but because his conscience as a physician commanded him to mention certain sufficiently important facts, so that more thorough research could be conducted while waiting for an appropriate treatment that could lead to an improved quality of life for our children.**

Now, as I mentioned earlier, the eye-catching title "Do vaccines cause autism?" is degrading when presenting a person like Dr. Wakefield who approaches the subject with a great deal of discernment and subtlety. I remind you that we are discussing environmental factors superimposed on an obvious genetic predisposition that could, in certain cases, trigger autistic behaviour.

With regard to your conclusion that we, unfortunate parents, are being fed pseudoscience and need, to calm our confusion, to find a guilty party for our children's autism, it is utterly condescending. I could go on and on about it, but will refrain from doing so. We all know the tune. But, since you are such a good scientist, I have no doubt that you will come to hear Dr. Wakefield so that you can, personally, ask the questions which motivate your denigration of his work.

You started your presentation with a quotation, I will end my letter with this one:

*Follow those who seek the truth and run from those who claim to have found it.*

Vaclav Havel.

Without giving up on the hope that some day you will show concrete interest in the pathological abnormalities observed in our children, I remain,

Yours sincerely,

Marie-Christine Destison

Parent and Volunteer

Vice-President of the SQA

Member of the Board of Autisme Québec and Chaudière-Appalaches

# Educational software: Resources on the Web

By Marie Langevin

For various reasons, young people with pervasive developmental disorders or autism have a great interest in the computer. For some of them, it is actually the only way to stimulate their learning of school subjects. Recently, we received many requests on the educational CD-ROMs and software available on the market. We have therefore listed the best Internet resources on the subject. We are suggesting a few sites that could guide you in the use and purchase of educational software and CD-ROMS.

## **Centre de ressources didactiques informatisées (Centre for computerized didactic resources).**

The CRDI site, in collaboration with the department of didactic resources in Québec's Ministry of Education, has a bank of more than 500 software programs, in addition to articles, news, evaluations by users, spaces for producers and distributors, etc. This is an ideal starting point for your search.

<http://c-rdi.+qc.ca>

## **Carrefour éducation (Education crossroad)**

In the *Carrefour éducation* section of Télé-Québec's site, there is a catalogue of software programs evaluated by the Ministry of Education. On the home page, select *Ressources didactiques* then *Banque de ressources*. Then opt for whatever type of research you want. The bank has 434 programs dealing with approximately twenty subjects of all levels of school work.

<http://carrefour-education.telequebec.qc.ca>

## **Centre franco-ontarien de ressources didactiques (Franco-Ontario centre of didactic resources)**

The CFORD gives access to an on-line library. You can consult electronic catalogues by theme or by subject matter. On the home page, click on *Librairie du centre*, then on the left of the screen, indicate under the *description* heading of the search engine the words *CD-ROM* and *logiciels*. You will then see a list of more than 500 elements. By clicking on any one of them, you will obtain the complete product coordinates (price, year of publication, product number, etc.) as well as a description of its contents and the computer equipment required for using it.

<http://www.cforp.on.ca>

<http://www.cforp.on.ca/>

## **BouScol**

This site gives access to the *Guide APO* site, which includes several guides for the exploitation of multimedia products for primary education. Also, under the heading *Logiciels éducatifs*, you will access various links such as CD-ROM DÉPÔT.

<http://stationo5.qc.ca/csrs/BouScol>.

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