FROM
ATTENTION DEFICIT
DISORDER
TO
AUTISM:
A CONTINUUM

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Abstract
The diagnosis of children with attention deficit disorders, learning disabilities and autism is on the rise. Recent research indicates that these disabilities lie on a continuum depending on the severity of the symptoms. There are many possible causes for these disorders. Included are problems with the brain, associated with birth or other physical trauma, reduced immune system function as evidenced by allergies, frequent illness and systemic yeast infections, over-exposure to antibiotics, and reactions to immunizations, congenital and genetic problems. Optometrists are encouraged to participate as a part of a multidisciplinary team when evaluating and treating these patients.

Behavioral optometrists are being asked to conduct an increasing number of visual-developmental evaluations on children with learning disabilities, attention deficits and pervasive developmental problems, including autism. The prevalence of children with these and other disabilities is on the rise. Some say this is a result of heightened public awareness or sophisticated diagnostic techniques, while others blame the environment, schools, or even the parents. Schools report that 15-20% of their students are receiving special education services.¹

It is estimated that there are more than two million children with attention deficit disorder (ADD) and ADD with hyperactivity (ADHD), and it is expected that by the year 2000, this will double to four million.² Many of these children have co-existing learning disabilities and behavioral/emotional problems. According to the experts, autism is no longer rare, but occurs in about one of 500 births.³

Although the primary care for these children occurs in the medical and educational arenas, optometrists have a great deal to offer when they work as members of the multidisciplinary team which evaluates and treats each child. In order to function most effectively in that role, it is necessary to understand that very recently thinking has changed. Attention deficits, learning disabilities, pervasive developmental disorders and autism are no longer considered to be discrete entities. Rather, it is the belief of many experts that the similar symptoms and behaviors seen in ADD, ADHD, learning disabilities (LD), pervasive developmental disorders (PDD), and autism are on the same continuum of severity, with like etiologies and treatments. Figure 1. depicts this relationship.

Definitions
Before one can fully understand the similarities of the disabilities on this continuum, it is necessary to define how each is presently diagnosed. The tool used most frequently by clinicians for this purpose is the Diagnostic and Statistical Manual, Fourth Edition (DSM-IV) of the American Psychiatric Association.⁴ The fact that this makes the disabilities psychiatric in nature can be a shock to parents.

ADD and ADHD
The first edition of the DSM, published in the ’50s, described children who were inattentive as having an organic brain syndrome. In the ’60s the disorder was called “minimal brain dysfunction.” Each
subsequent edition of the DSM has included an increasing number of symptoms and categories that incorporate more and more children. Focus has shifted from a very narrow, medically-based category to a much broader, more inclusive and more subjective category. Although many still believe that the two entities, ADD and ADHD (which this article will jointly designate as AD(H)D) are neurologically-based “diseases” with corroborative diagnostic findings, this has not been proven to be so. While recent sophisticated brain imaging techniques can show structural differences between the brains of AD(H)D and unaffected individuals, the etiology of these neurological differences has not been determined. It is also generally assumed that people diagnosed as having ADHD evidence a common set of characteristics emanating from a common etiology. However, little agreement is found among researchers regarding these symptoms.

The DSM-IV defines AD(H)D using observed behaviors. In each case, these behaviors must be present for at least six months to a degree that is maladaptive and inconsistent with the person’s developmental level. In addition, some of the symptoms must be present prior to the age of seven and occur in two or more settings (e.g. at school or work, and at home). There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning, and the impairment cannot be caused by other disorders such as anxiety, psychosis, or a pervasive developmental disorder.

Six of the nine symptoms of inattention listed in Table 1 qualify the child for the diagnosis “Attention deficit, predominately inattentive,” or simply ADD.

Six of the nine symptoms of hyperactivity and impulsivity in Table 2 are necessary for the diagnosis “Attention deficit predominately hyperactive-impulsive,” or ADHD. This acronym also includes the combined type of attention deficit in which the child is inattentive, hyperactive and impulsive.

Unfortunately, the DSM-IV does not define how often is “often.” This makes the diagnosis rather subjective. In addition, the symptoms appear to be very redundant. How does “on the go” differ substantially from “running and climbing excessively,” for instance?

| Table 1 |
| Symptoms of Attention Deficit Disorder (ADD) |
| At least six are necessary |
| Often fails to give close attention to details or makes careless mistakes |
| Often has difficulty sustaining attention in tasks or play activities |
| Often does not listen when spoken to directly |
| Often does not follow through on instructions or fails to finish work |
| Often has difficulty organizing tasks and activities |
| Often avoids, dislikes or is reluctant to engage in tasks requiring sustained mental effort |
| Often loses things |
| Often distracted by extraneous stimuli |
| Often forgetful in daily activities |

Behavioral optometrists will recognize that many of the symptoms in Tables 1 and 2 are also seen in patients with a variety of visual dysfunctions such as accommodative, oculomotor, binocular and visual-perceptual disorders. The challenge is to determine whether the visual problems are the primary cause of these behaviors, or are, at most, a contributory factor. Indeed, optometry has addressed the question of the relationship between visual deficits and attention in different ways. This is an important issue because when the visual problem is primary or even a contributory source to the aberrant behaviors, it is morally and ethically incumbent that appropriate optometric intervention be instituted. It is then imperative that the eye care professional help parents and adult patients understand that the diagnosis of ADD or ADHD is merely a cluster of symptoms. It does not prescribe treatment. Only by looking at the causes of the various symptoms can a proper multidisciplinary remediation program be initiated.

| Table 2 |
| Symptoms of Hyperactivity and Impulsivity (ADHD) |
| At least six necessary |
| Often fidgets with hands or feet or squirms in seat |
| Often has difficulty remaining seated when required to do so |
| Often runs or climbs excessively |
| Often has difficulty playing quietly |
| Often "on the go" |
| Often talks excessively |
| Often blurts out answers to questions before they have been completed |
| Often has difficulty awaiting turn |
| Often interrupts or intrudes on others |

dysfunction, dyslexia, and developmental aphasia. Such term does not include those children who do not have learning problems which are primarily a result of visual, hearing or motor handicaps, of mental retardation, or emotional disturbance, or of environmental disadvantage.

Research into the etiology of learning disabilities shares two important similarities with those of attention deficits. First is that the bulk of the studies seek a neurological, physiological and/or physical basis. However, the Colorado Reading Project found evidence for a genetic etiology for reading disabilities from two large independent samples. Most interesting is that the affected region on chromosome also influences the immune system. It is thus possible that immune problems are contributing to the reading problems, not vice versa. Secondly, underlying visual dysfunctions are frequently overlooked. Deficits in spelling, reading, and perception, like poor attention, hyperactivity and distractibility, could be manifested of undiagnosed visual problems. The eye care professional must determine whether visual issues are contributory or secondary. In many cases, what is being defined as a learning disability could be a learning-related visual problem.

Pervasive Developmental Disorders (PDD) and Autism

Autism is a severely incapacitating developmental disability that typically appears during the first three years of life. The initial identification of autism was made by Leo Kanner in 1943 and the etiology was considered to be psychological. The various editions of the DSM affirm this view, with expansion in each revision to include and clarify each disorder.
Children with pervasive developmental disorders (PDD) exhibit autistic-like behaviors but not to the degree of full-blown autism. This diagnosis includes those children who fit some, but not all, of the criteria for autism; they have "autistic features," but demonstrate a huge array of developmental patterns. The DSM-IV also includes a category called Pervasive Developmental Disorders, not otherwise specified (PDD-NOS), as well as many autistic syndromes such as Asperger's and hyperlexia at the high-functioning end. Some of those who are only mildly affected may appear almost "normal." 

The four most common and classic features of individuals with autism are:
1) Delays in understanding and using language.
2) Unusual responses to sensory stimulation.
3) Resistance to change and insistence upon routines, and
4) Difficulties with typical social interactions, lack of eye contact, and lack of relatedness.14

More modern thinking has been that autism, like ADD and ADHD is a neurologically-based problem.15 Researchers, however, are now paying attention to other "emerging" symptoms that have been noted but were previously unreported or ignored. These include:
1) Digestive problems, including constipation, diarrhea, reflux;
2) Self-limited diets often consisting primarily of wheat and dairy products;
3) Allergy symptoms such as red ears and cheeks, and puffy faces;
4) Food and air-borne allergies;
5) Sleep problems;
6) Hyperactivity; and
7) Hypotonia16

The Autistic Spectrum:
Two useful acronyms have emerged to describe the symptoms of the autistic spectrum: Attentional Behavioral Continuum (ABC) coined by Dr. Robert Simulko, an immunologist, and Multi-System of Developmental Delays (MSDD) by Dr. Stanley Greenspan, a child psychiatrist. Each takes into account that cognitive, language, motor, sensory-motor, vision, and social-emotional areas are affected. The big question is what happens to the body that causes the development of these systems to go awry?

Dr. Bernard Rimland, a psychologist and father of a son diagnosed as autistic, has been addressing this question since 1967 when he founded the Autism Research Institute (see Appendix). For the past 30 years, Dr. Rimland has worked indefatigably to understand the causes of autism. Considered today to be the world's leading authority on this ailment, he is attributed for bringing autism out of the dark ages and giving parents of children with this diagnosis some hope.

In January, 1995, he appointed Drs. Sidney Baker and Jon Pangborn as chair of Defeat Autism Now! (DAN!), a think-tank made up of the most eminent autism researchers in the world. They have published the DAN! Protocol17 which documents those tests and procedures needed to exhaustively pinpoint vascular, immunologic, auto-immune, metabolic, iatrogenic and genetic issues.

Parents and physicians of many children with developmental and attention problems relate that their youngsters passed their milestones appropriately. Almost all sat, walked, and related as toddlers. Most developed speech and language. At some point, usually between 15 and 24 months, the lights went out or behavior became unmanageable or regressed. Case histories of earlier versions of attention problems or minimal brain dysfunction, and "Classical" or Kanner's autism suggest this sequence of events in some cases. However, today's researchers say that the pervasive developmental problems and attentional deficits they are seeing today are qualitatively different.

Some can recall the date and event when their toddlers went off-track, and even have home videos to show. They know it happened around the same time the child developed colic, ear infections, allergies, asthma, eczema, seizures, reacted negatively to an immunization, became a picky eater, or could not sleep through the night. Sometimes it was gradual. Grandma noticed that the baby wasn't looking at her and smiling anymore; Mom and Dad commented to the pediatrician that they no longer heard the single words used for about a year and that the child was not adding more words to his/her vocabulary. The first grade teacher said that the student could not sit still and pay attention.

In other cases the change was sudden and followed an ear infection, high fever, immunization, or routine surgery. After days, weeks or even months of anxiety, experts were consulted and the diagnosis made: pervasive developmental disorder (PDD), autism, attention deficit with or without hyperactivity (ADD or ADHD), multi-system developmental disorder (MSDD), specific learning disability (LD) or one of hundreds of other disabilities, many named after someone who first noticed the cluster of symptoms. All of these problems have a common etiology: total load.

The Total Load Theory
This is a multi-factorial approach to describe the cumulative effect of the individual assaults of each symptom on the body as a whole. The cluster of symptoms that eventually lead to one of the diagnoses on the continuum is the result of many organ, muscle, and sensory systems of the body being stressed to their limits.

Each individual has a personal load limit, as does a bridge. When that limit is exceeded, skin, respiratory, digestive, immunological, language, motor and attention problems occur. These co-exist with the developmental, cognitive, and sensory problems, and their relationship is only just beginning to be understood. But many behavioral optometrists can recall a patient whose allergies disappeared or lessened when the visual problems were alleviated. Removing the "load" of the visual dysfunction allowed the body to cope with the allergies.

Children are far more susceptible to the load of stressors than adults because their smaller developing systems cannot handle the assault. The end of the second year of life is a particularly vulnerable time because vision, language, and social skills are maturing at a rapid rate. Optometrists and vision development and the emergence of language and social skills. If they are not, they will first look for help from the office of a language pathologist or mental health professional.
Many prenatal conditions serve to add to the total load. If babies have endured complications of pregnancy, such as gestational diabetes; are born to parents with thyroid problems, severe allergies, autoimmune issues such as chronic fatigue syndrome or fibromyalgia; or have had subtle birth trauma, such as oxygen deprivation or breech presentation, they are much more at risk for later developmental problems. Additional red-flags factors in the first year of life are: colic, allergies to cow’s milk, projectile vomiting, reflux, eczema, chronic ear infections, repeated use of antibiotics, immunization reactions, or sensory deprivation. The developmental histories of children with most delays show one or more of these problems. According to a study of almost 700 children done by the Developmental Delay Registry (DDR) (see Appendix) in 1994, children who had more than 20 rounds of antibiotics were over 50% more likely to have delays. Affected children were nearly four times as likely to have had negative reactions to an immunization.

Looking For Causes

There are many possible etiologies for the behavioral characteristics which make up the disorders on this continuum. Included are problems with the brain, associated with birth or other physical trauma, resulting in decreased blood flow; reduced immune system function as evidenced by allergies, frequent illness and systemic yeast infections; over-exposure to antibiotics, toxins like lead, and reactions to immunizations; and congenital and genetic problems. This article cannot possibly elaborate on all of these, so only several will be highlighted. The reader is referred to the references for further information.

The Structural Connection

According to Dr. Viola Frymann, an osteopathic physician who works extensively with behavioral optometrists in California, birth trauma is the most common cause of developmental problems, including autism, attention deficits and learning disabilities, with at least 80% of these children having a history of a traumatic birth. Problems in delivery, resulting from the temporary compression of passing through the birth canal, from which the skull and sacrum do not recover fully, can affect the brain and spinal column, as well as the fluids that are inside. The insult is thus on the nervous system as well as other bodily functions. Some are accompanied by seizures and obvious motor problems such as cerebral palsy.

Structural dysfunction resulting from birth trauma can be corrected early so that neurological development progresses satisfactorily. Then motor, sensory-motor, language, social-emotional, cognitive, and behavioral problems can be averaged by establishing or restoring optimal anatomic-physiologic integrity.

The Immune System

Of all the possible causes associated with the autistic spectrum, the breakdown of the immune system is the one that has received the most attention. It is on the alert to protect against all invaders: bacteria, toxins, viruses, pollen, parasites, molds or incompletely digested particles of food.

In a newborn, the immune system is still immature. If the baby is born compromised in any way, the immune system might well be affected. If that baby develops an infection, fighting it may be a fight for life itself. It is thought that the process of fighting infection strengthens the immune system. The next time an invader comes around, the body is ready. However, if an antibiotic does the job instead, some believe that the immune system is suppressed. The next time an invader appears, the immune system might respond less vigorously. By the fourth or fifth ear infection, the immune system might not even recognize the invader as a threat.

An alternative explanation is that the opposite effect occurs. In children on the autistic spectrum, assaults to the immune system could be occurring during the critical period of development in the second year of life when the body may not have enough vital force to fight infection and process touch, sound, sights, thoughts, and feelings simultaneously. What would happen is that the body puts all of its energy into staying alive. The immune system becomes hypervigilant and also irritable. This internal irritability can be observed outwardly as distractibility and hyperactivity, with development of sensory processing being severely retarded.

Today’s antibiotics are “atom bombs,” compared to the “water pistol” of the previous generation, which include penicillin. That bacteria are becoming more and more resistant to today’s drugs, requiring stronger ones to kill the infections, is common knowledge. But is it possible that these miracle drugs which are essential to combat infection are also affecting children’s nervous systems?

The Vaccination Connection

Since the early 1980s parents have reported a possible link between the onset of autism and hyperactivity and immunizations. Vaccines are now being given to babies earlier and in groups, sometimes in the first 24 hours of life. Incessant crying, seizures, and sudden loss of language are just a few of the symptoms reported related to an immunization. Even sudden infant death syndrome (SIDS) can be traced to a vaccination. Blood tests show a high titer of the disease against which the vaccination was to provide protection, even years later. The immune system is still in high gear acting against that invader. This was the case of Garrett Goldemberg whose mother Cindy became an overnight media star when she would not accept her doctor’s disinterest in her son’s high rubella titer.

Barbara Lee Fisher, co-founder of the National Vaccine Information Center (NVIC) (see Appendix), co-author of DPT: A Shot in the Dark, and the mother of a vaccine-damaged child, has devoted the past 15 years to advocating for freedom of choice for parents as to when and whether to immunize their children. The NVIC maintains a registry and publishes a newsletter on this subject. Even at the time of this writing, the campaign to immunize each and every child earlier and earlier, and for more and more diseases has escalated. “Be Wise and Immunize” the radio and television public service announcements beg. It is the belief of those who see the connection between immune system deficiencies and ADD/Autism that there will be an even greater increase in the numbers of children with attentional and pervasive developmental problems if this practice continues.

Leaky Gut And Resultant Allergies

A “leaky gut” occurs when toxins, produced in the digestive process, pass through the thin mucosal membrane barrier that lines the intestinal wall and enter the bloodstream. The body’s immediate reaction is to clear these incompletely digested particles. IgG antibodies are produced by the immune cells which attach...
themselves to all over-sized food particles. “Allergies” are a result of the white blood cells working overtime to combat these invaders. If the immune system is compromised because of any of the other factors of the total load, it is impossible for it to purge the system completely. The toxins thus travel around the body, affecting other tissues, resulting in inflammation, distress, and dysfunction. 29

Wheat And Dairy

Cow’s milk and wheat allergies are common in infants. Some pediatricians are now recommending against introducing cow’s milk into a baby’s diet until after the first birthday. Dr. Talal Nsouli, an allergist at Georgetown University Hospital, has shown that 78% of early childhood ear infections are related to food allergies, including dairy products and wheat. By eliminating the offending food from the diet over a 16-week period, he could ameliorate the infection in 86% of these children. Reintroduction of the food caused a recurrence. By limiting the diet of the patients, Dr. Nsouli avoids the unnecessary use of antibiotics or insertion of ear tubes, often seen as panaceas to the chronic nature of the problem. 30

It is interesting to note that although I could find no studies on the subject, a number of parents report that children with recurrent ear infections had earlier gastrointestinal problems. They thought that because their children no longer had colic, stomach aches, reflux, constipation, diarrhea or vomiting, their offspring had “outgrown” their food sensitivities. Current thinking is that these problems persist, and as the child’s body matures, the physical illnesses are manifested in different ways. A problem with cow’s milk or wheat is probably life-long and has been related to other chronic problems such as eczema, asthma and childhood diabetes. 31

Is it possible that autism or attention deficits begin with allergies?

Opioid Excess Theory

Dr. Lisa Lewis, the mother of a child diagnosed with autism, was intrigued that her son, like many children on the autistic spectrum, ate a very limited diet consisting almost entirely of wheat and dairy food in every imaginable combination. Breakfast was cereal and milk or a bagel and cream cheese; lunch consisted of macaroni and cheese or a grilled cheese sandwich; and dinner was pizza and french fries, with an occasional piece of fruit, green vegetable, or chicken nugget. Most interesting is that many parents report this diet using words like “addicted” and “craves.” These children appear to need their next “fix” of wheat and dairy food as much as an addict needs his drug.

When Dr. Lewis scoured the literature, she discovered the work of Panksepp, 32 Rosemary Waring, 33 and K.L. Reichelt. 34 She summarized the findings of these and other researchers in a document “An Experimental Intervention For Autism,” available from both the Autism Research Institute and the Developmental Delay Registry (see Appendix). In addition to gluten and casein, Dr. Waring discovered that these children have low levels of phenol-sulfotransferase-P. This chemical is an enzyme needed to process certain foods which contain a phenyl ring in their structure, and to detoxify certain intestinal bacteria. It is her conjecture that the intact phenols and bacteria act as internal irritants, which cause bizarre and hyperactive behavior. Removing the offending foods often helps alleviate some of the behavioral symptoms. Dr. Waring suspects that there is a definite connection between deficiencies of phenol-sulfotransferase and ADD and autism. Preliminary testing of children with ADD/ADHD in the United Kingdom supports this hypothesis.

These researchers also noted the similarities between the behavioral effects of opioids on animals and the symptoms of autism. In urine tests, which they designed, they found that 50% of people with autism have elevated levels of substances with properties similar to those expected from opioid peptides. What is believed to happen is that the gluten from the wheat and the casein from the dairy combine chemically to make this opiate. More recently, Dr. Robert Simanko has also shown the presence of abnormal quantities of certain substances in the urine of children with autism, attention, learning and behavioral problems. These samples include fragments of incompletely digested proteins from cow’s milk and wheat. 35

The Yeast Connection

Dr. William Crook, a pioneer in this field, who has practiced pediatrics since 1949, has written extensively on the relationships between foods and hyperactive or autistic behavior. 36-41 As early as 1982 he noted a child named Rusty with a history of colic and ear infections in the first year of life. By the age of two Rusty showed both hyperactivity and autistic symptoms. Several foods were identified as problematic, especially mushrooms and wheat. After eating any food with fungus or mold he became wild, aggressive, and cried. Within 30 minutes of eating wheat, his pupils dilated and he showed self-stimulatory behavior. 42

Crook believes that many children on the autism spectrum have yeast (candida albicans) connected problems. Dr. Rimland also suspected a relationship back in 1985. 43 Because yeast needs sugar to grow, children who crave sweets are highly suspect. Strong antibiotics knock out virtually all of the bacteria in the gut, including beneficial varieties. The good bacteria control the growth of candida. In their absence, the yeasts colonize and spread, feeding on sugar from candy, soft drinks, fruit juices and baked goods.

Fortunately, there is now a urine test that detects abnormal organic acids associated with yeast and fungal metabolism. Dr. William Shaw, the former Director of Clinical Chemistry and Toxicology at Children’s Mercy Hospital in Kansas City, identified abnormal by-products of yeast overgrowth in the gut flora of some children, who he later learned were diagnosed with attention deficits and autism. 44 A follow-up study of other children with the diagnosis of autism and attention deficits confirmed his findings, but he was prohibited from sharing his results and was subsequently fired for speaking in public about his research.

The following scenario is common to children with yeast-related problems: Mother has recurrent yeast infections, menstrual irregularity, bladder infections; child has thrush in infancy, recurrent and persistent diaper rash, colic, recurrent ear infections with repeated or prolonged antibiotic use, chronic allergies including rashes, wheezing and coughing, headaches, muscle aches, abdominal pain or digestive problems, irritability, depression, mood swings, hyperactivity, attention problems. Many of these conditions are the emerging symptoms of autism.

ADDitives

Is it just a coincidence that the abbreviation ADD makes up the first syllable of “additive”? The late Dr. Benjamin Feingold thought otherwise. It was his belief
that hyperactivity was related to what was being added to some foods. In 1974 he developed an elimination diet at Kaiser-Permanente Medical Center in San Francisco and published it in Why Your Child Is Hyperactive.25

Dr. Feingold discovered that foods with salicylates and additives can negatively affect some children's behavior. Included are artificial colors, dyes and flavors, preservatives such as Butilated Hydroxyanisole (BHA), Butilated Hydroxytoluene (BHT), Tertiary Butilhydroquinone (TBHQ), foods with naturally occurring salicylates, such as apples, oranges, tomatoes, peppers, berries, cucumbers, and any product containing aspirin. The research of Dr. Jonathan Brostoff and his colleagues in Great Britain confirms that of Rosenary Waring which Finger's a deficit in pheno-sulpho-transferase-P in some hyperactive children. He takes this one step further by noting that food dyes appear to inhibit this enzyme.26

The Feingold Association of the United States (FAUS) (see Appendix) has continued Dr. Feingold's work by publishing a manual on foods that are "safe" for those affected by additives. They also have a strong support system for families interested in trying an elimination diet. In 1995, FAUS established the Autism, Intolerance & Allergy Network (AIA) (see Appendix) because they believed that the same chemical and food problems that caused hyperactivity in some children were resulting in the observable physical signs and the behavioral abnormalities attributed to autism. Although there have been many controlled double-blind studies linking diet and hyperactivity,27-51 for the most part they have been ignored or refuted by the medical community.

**Optometric Findings**

The visual characteristics and optometric findings of children with autism and attention deficits have been investigated by many practitioners.10,52,56

They are summarized in Table 3.

**Impressions**

It is possible to relate some of the findings in Table 3, along with other behaviors which optometrists encounter in this population, to more basic problems. For instance, poor compliance with attempts at occlusion could be attributed to the not uncommon issue of tactile defensiveness found in many of these children.

### Table 3

**Optometric Findings of Children on the Autistic Spectrum**

- Difficulty completing an exam, especially complying with attempted occlusion
- General absence of eye disease or ocular pathology
- High percentage of an intermittent exo- or exotropia
- Atypical eye movements
- Poor saccades
- Accommodative and vergence anomalies
- Refractive errors with most mildly hyperopic
- Inconsistent to very poor eye contact

Eye movement problems can be related to underlying deficiencies in the vestibular system. The symbiotic relationship between this and the visual system must be analyzed to determine which is cause and which is effect. The incidence of intermittent strabismus could be explained by a fusional deficiency which is the product of the general malaise and/or attentional problems characteristic of this population.

On the other hand, it is important for optometrists to recognize that some of the atypical behaviors seen in these children might be a result of impaired visual function. In this regard, lack of eye contact, the universally most consistent symptom of autism, and over-use of peripheral vision, might be the products of impaired binocular function or poor fixation ability, or that the lack of overall focus, the most common symptom of AD(H)D, could be caused by an uncorrected refractive condition, or an accommodative dysfunction. Parents may be aware that the child has a diagnosed strabismus, and may even have had it surgically "corrected." But the relationship between the hyperactivity or autism and the strabismus or strabismus surgery may not have been made.

Furthermore, the stereotypic behaviors of autism, such as hand flapping, blinking, and light gazing, and the "disruptive" behaviors manifested by children with attentional deficits, such as wiggling, interrupting, and excessive movements, could be compensatory behaviors used to stimulate the visual system and stay alert. Once these are considered as possible titles, the behaviors can be interpreted not as disturbing, but rather as good coping mechanisms.

**Treatments**

There is no doubt that some of children on the autistic spectrum can benefit from vision therapy. However, the use of lenses, prisms, filters and movement activities must be completed in the context of a holistic multidisciplinary program that works on all aspects of the child's physiology. A subsequent article covers the range of treatments available for strengthening the immune system, correcting structural problems, combating candida, and possibly reversing the results of immunizations.

**APPENDIX**

**List Of Organizations Which Can Provide Further Information**


Developmental Delay Registry (DDR), 6701 Fairfax Rd., Chevy Chase, MD 20815. 301-652-2263. Publishes quarterly newsletter focusing on treating causes, not symptoms.

Feingold Association of the United States (FAUS), P.O. Box 6550, Alexandria, VA 22306, 703-768-FAUS.

National Vaccine Information Center (NVIC), 512 W. Maple Ave., #206, Vienna, VA 22180, 800-909-SHOT.

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and mastectomy patients' hospital stays is an impressive governmental response to a lack of concern for quality of care. And there is something very wrong with a system that places a "gag order" on its employees, resulting in the inability of doctors, or other providers, to fully inform their patients.

So, where does this leave us in 1996? We are perhaps approaching the extent of one of the extremes of the pendulum's swing. The blind endorsement of managed care seems to be slowing down. Indeed, the current form is beginning to show its vulnerabilities. How can a health care reimbursement system that produces a significant number of dissatisfied providers and suspicious patients survive? I suggest that it will, because the previous system was out of control; while it suited practitioners, it often shortchanged patients and insurers. However, as the pendulum swings in the other direction, there will be modifications, so that the prominence of the "bean counters" will significantly lessen.

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