



# ADHD Educational Kit



## **Panel: ADHD drugs for kids need hallucination warning**

By Rita Rubin, USA TODAY

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GAITHERSBURG, Md. — A Food and Drug Administration advisory committee recommended Wednesday that the agency add information about a possible risk of hallucinations in children to the labels of attention deficit/hyperactivity disorder drugs.

The committee also urged the FDA to develop a consumer-friendly medication guide explaining to parents that they should talk to their child's doctor about stopping the medication should hallucinations occur.

The panel said the "MedGuide" also should note that ADHD drugs may increase the risk of aggressive behavior, although that can be a component of the disorder itself. And the guide should note that the drugs might increase the risk of heart attack, stroke or sudden death in patients who have undiagnosed heart problems.

Current labeling for the ADHD drugs — Adderall, Focalin, Concerta, Metadate, Methylin, Ritalin and Dexedrine — does not mention the possibility of hallucinations in patients who had no history of them and had taken the usual dose.

"We read case upon case of these children who do experience these hallucinations," Rosemary Johann-Liang of the FDA's Office of Drug Safety told the committee. "That is something that really struck all the reviewers."

Johann-Liang said it's unlikely that the ADHD drugs are simply unmasking a previously undiagnosed psychiatric disorder that would explain the hallucinations.

The panel did not feel that the risk of hallucinations warranted a "black box" warning, the strongest type of warning, said Pediatrics Advisory Committee chairman Robert Nelson of the department of anesthesia and critical care medicine at The Children's Hospital of Philadelphia. In 2004, Nelson's panel did recommend a black box warning about suicidal behavior in children and adolescents who take SSRI (selective serotonin reuptake inhibitor) antidepressants. In that case, he said, there was only "marginal" evidence that the drugs were effective in that age group.

"In this case, you have overwhelming evidence of efficacy," Nelson said, adding that a black box might unnecessarily scare parents away from treatment.

The panel discussed whether ADHD drugs increased the risk of suicidal thoughts in children and adolescents, a possibility that Kate Gelperin, medical epidemiologist in the FDA's drug safety

office, said could not be ruled out. But the panel did not advise adding that risk to their labels. Thomas Laughren of the FDA division that reviews psychiatric drugs said studies have found that 15% to 20% of adolescents in the general population report having suicidal thoughts.

The ADHD drug Strattera already has a black box warning about suicidal thoughts because of evidence from clinical trials, but no other ADHD drug label carries any information on suicidal thoughts.

Robert Temple, director of the FDA center that evaluates psychiatric drugs, said the agency is likely to follow the panel's advice.

[http://www.usatoday.com/news/health/2006-03-22-adhd-label\\_x.htm](http://www.usatoday.com/news/health/2006-03-22-adhd-label_x.htm)



## ADHD drugs linked to hallucinations

**All drugs for attention deficit disorder may cause psychotic reactions, including rare cases of hallucinations and agitation in children, Health Canada is warning.**

By CanWest News Service September 22, 2006

All drugs for attention deficit disorder may cause psychotic reactions, including rare cases of hallucinations and agitation in children, Health Canada is warning.

In a public advisory issued Thursday, the agency said patient and labelling information for a raft of medicines prescribed for attention deficit/hyperactivity disorder, or ADHD, will be changed to reflect "the potential for psychiatric adverse events."

The brain stimulants are among the most commonly prescribed drugs to Canadian children. More than 1.9 million prescriptions were filled by retail drugstores between September 2005 and August 2006, according to IMS Health Canada, a prescription drug tracking firm.

Health Canada says ADHD drugs are "generally safe" and effective when used properly. "Patients taking ADHD drugs should consult with their physicians if they have any questions or concerns."

The new safety concerns come four months after Health Canada warned ADHD drugs can carry rare heart risks, including a risk of sudden death. That public advisory cautioned that any child or adult with high blood pressure, heart disease or heart abnormalities, hardening of the arteries or an overactive thyroid gland should not use Ritalin or seven other medications.

The new advisory applies to those same drugs: Ritalin and Ritalin SR (a slow-release version), Adderall XR, Attenade, Biphentin, Concerta, Dexedrine and Strattera.

"We've been in discussions with the manufacturers and we expect to have the label changes made by December," Health Canada spokesman Paul Duchesne said.

In March, a U.S. Food and Drug Administration advisory committee heard that as many as six per cent of children on ADHD drugs may be at risk of a psychiatric side effect.

The FDA's Kate Gelperin, an expert on drug safety, described cases of "hallucinations, both visual and tactile, involving insects, snakes and worms", according to Knight-Ridder newspapers. Hallucinations have been reported in children with no identified risk factors, and at usual doses.

A review of post-marketing safety data found a "substantial portion" occurred in children 10 or younger, age groups where hallucinations are not common.

The FDA has received reports of manic symptoms, hallucinations and abnormal behaviour - including one six-year-old boy who started licking the table one day after starting treatment.

Suzanne VanAmstel, of Janssen-Ortho, makers of Concerta, would say only that the drug company is "in discussions with Health Canada regarding an update to Concerta."

From 2000 to 2005, Health Canada received 187 suspected adverse drug reaction reports for methylphenidate, the main ingredient in Ritalin and Concerta. They included three deaths (two suicides and one sudden death), seven convulsions, eight "mood/personality/psychological" reports, and eight reports of aggressive behaviour.

Of the 55 reports involving Stattera, 11 involved mood or psychological changes, and seven aggressive behaviours.

There were 68 suspected adverse drug reactions for dextroamphetamine, which includes Dexedrine and Adderall. Of those, six involved mood/personality/psychological reports, two aggressive behaviour, seven tics or twitching and two movement disorders.

No direct cause-and-effect link has been proven. The reports are based on suspicion or opinion only.

<http://www.canada.com/reginaleaderpost/news/story.html?id=59de58ef-acbc-4012-9d40-1b3c9b28d9e7&k=37137>



## ADHD drugs can cause hallucinations in some kids

[Julie Steenhuysen](#)

CHICAGO

Mon Jan 26, 2009 12:39am EST

CHICAGO (Reuters) - Drugs for attention deficit hyperactivity disorder can cause children to have hallucinations even when taken as directed, U.S. government researchers said on Monday.

### [Health](#)

U.S. Food and Drug Administration researchers analyzed data from 49 clinical studies conducted by makers of the drugs and found they can cause psychosis and mania in some patients, including some with no obvious risk factors. In some cases, children hallucinated that worms, bugs or snakes were crawling on them.

"Patients and physicians should be aware of the possibility that psychiatric symptoms consistent with psychosis or mania" might arise in the course of treatment, Dr. Andrew Mosholder and colleagues wrote in the journal *Pediatrics*.

Their analysis provides fresh detail about known risks of the drugs, which include Novartis AG's Ritalin and Focalin XR, Shire Plc's Adderall XR and Daytrana patch, Johnson & Johnson's Concerta, Eli Lilly and Co's Strattera and Celltech Pharmaceuticals Inc's Metadate CD.

It also includes data on Cephalon Inc's modafinil, sold as Provigil, a narcolepsy drug that was rejected as an ADHD treatment in children.

FDA spokeswoman Sandy Walsh said the data formed the basis for recent warnings about psychiatric side effects that have been added to product labels in recent years.

Millions of children use drugs to treat symptoms of ADHD, which affects about three to seven percent of U.S. children.

ADHD is marked by restlessness, impulsiveness, inattention and distractibility that can interfere with a child's ability to pay attention in school and maintain social relationships.

"The numbers of cases of psychosis or mania in pediatric clinical trials were small," Mosholder and colleagues wrote. "However, we noted a complete absence of such events with placebo treatments."

In one account, they described a 7-year-old girl who took an 18 mg dose of Strattera or atomoxetine who started talking nonstop within hours of taking her first dose.

"Two hours after taking her second dose of atomoxetine, the patient started running very fast, stopped suddenly, and fell to the ground. The patient said she had 'run into a wall' (there was no wall there)," they wrote.

"These adverse side effects are rare," said Dr. Harold Koplewicz of New York University Child Study Center, who was not involved in the study, adding that they are reversible,

"Once you stop the medicine, the side effects go away," he said in a telephone interview.

He said children under age 10 are susceptible to negative drug side effects in the same way that older adults are.

"We know that medications that affect neurochemicals in your brain to increase your attention and make you less impulsive also can have an effect on other neurochemicals in your brain that affect mood," he said.

Both Koplewicz and FDA researchers urged doctors to discuss the potential side effects with parents and children to help ease their anxiety if such symptoms should occur.

(Editing by [Maggie Fox](#) and [Alan Elsner](#))

<http://www.reuters.com/article/idUSTRE50P0QS20090126>

## Food Additives May Cause Hyperactivity

Posted on Fri, Oct 26, 2007, 12:01 am PDT

by [Simeon Margolis, M.D., Ph.D.](#) a Yahoo! Health Expert for Nutrition



A diagnosis of attention deficit hyperactivity disorder (ADHD) is often made in children who show a pattern of overactive, impulsive, and inattentive behavior. More than 30 years ago, Benjamin Feingold claimed that artificial food colors and other food additives produce hyperactivity in children.

Feingold was a pediatric allergist who wrote "Why Your Child Is Hyperactive" and devised a diet to prevent ADHD. Although many parents have suspected such a relationship, and ADHD support groups have recommended for years that these additives be removed from the diet, the issue has remained controversial due to the lack of adequate supporting evidence.

Now a new controlled, double-blind trial has confirmed that certain food additives caused hyperactivity in healthy young children who did not have ADHD.

Nearly 300 children from the community of Southampton, United Kingdom, participated in the study. The children (153 3-year-olds and 144 8- or 9-year-olds) were challenged for 6 weeks with drinks containing a placebo mix or the commonly used food preservative sodium benzoate, plus one of two (A or B) different mixes of food colorings.

After consuming the drinks, the children were evaluated for inattention and hyperactivity by parents, teachers (for school-age children), and with several computer tests. Compared with the placebo, Mix A - but not Mix B - had a significant adverse effect on the 3-year-old children. On the older children, both the A and the B additive mixes had significant adverse effects. The study could not determine which colorings caused hyperactivity because all the drinks contained mixtures of widely used food colors.

The researchers concluded that "artificial colours or a sodium benzoate preservative (or both) in the diet result in increased hyperactivity in 3-year-old and 8/9-year-old children in the general population."

Keep in mind that children already diagnosed with ADHD may be even more sensitive to such food additives than are other children.

Does this mean that children with ADHD should avoid food coloring and other additives? Not necessarily. Dr. Thomas Spencer, from Massachusetts General Hospital, points out that even a statistically significant effect of an additive may be too small to adversely affect a child's life. He also expressed concern that avoiding certain foods and drinks might have its own negative impact if a child cannot eat or drink the same things as his or her friends.

In response to the study, the Food Standards Agency in Great Britain advised that parents monitor their children's activity and, if a marked change is noted with foods containing such additives, adjust their diets to eliminate artificial colors and preservatives. The advice seems sound but difficult to follow.

<http://health.yahoo.com/experts/healthnews/13269/food-additives-may-cause-hyperactivity/>



## Attention deficit hyperactivity disorder, ADHD, has a simple cause: poor nutrition and food additives



Thursday, August 19, 2004  
by Mike Adams, the Health Ranger  
Editor of NaturalNews.com

New research is appearing now that's showing the link between the consumption of food additives by children -- especially food colorings -- and attention deficit hyperactivity disorder, or ADHD. Well-informed parents have long realized that the consumption of food additives causes hyperactivity in their children, but most conventional doctors have dismissed the idea as pure bunk. Of course, far too many doctors dismiss the idea that food choice has any relationship to health in the first place, so the view from [conventional medicine](#) doesn't carry much weight. The real story here, however, is not that [food additives](#) and artificial colorings cause ADHD, but that there are several other dietary substances that heavily influence a child's mental state and day-to-day behavior.

Let's face it -- the human [brain](#) is a flesh and blood organ, and it is strongly influenced by [blood](#) chemistry, which is, in turn, dictated almost entirely by diet. What you eat, in other words, determines what your blood composition looks like, and what your blood composition looks like determines the way your brain functions. Of course there are other factors such as physical exercise and environmental influences, but the largest factor of all is dietary.

So when you eat [processed foods](#) containing additives and artificial colors, you are introducing toxic [chemicals](#) into your bloodstream. Those chemicals find their way into the brain and alter [brain function](#), and in the case of children who have been diagnosed with ADHD, it alters their behavior to make them restless or to have a shortened attention span. It can also cause children and adults alike to display other problems derived from their mental state.

But it isn't just [food](#) additives -- it's also [refined carbohydrates](#). People who eat large quantities of white bread (or food containing refined white flour) also suffer from [mental disorders](#). These can include depression, aggression and violent behavior, and [learning disabilities](#). Consuming refined [carbohydrates](#) also causes people to have brain fog -- that is, they can't concentrate for very long, and they don't feel like they have clarity of mind.

Drinking [soft drinks](#) also causes the same effect, because it is essentially the same macronutrient that's poisoning your body: [refined sugars](#). As it turns out, these refined [sugars](#) also cause behavioral disorders by depleting the body of nutrients that are critical for neurological [health](#). These nutrients include the B [vitamins](#) and several notable [minerals](#), including magnesium and zinc. When the human body is deficient in these vitamins and minerals, it will, of course, exhibit both mental and physical disorders.

The problem in all of this is that rather than recognizing the true cause of these mental and physical disorders in our children and in our adult population, conventional [medicine](#) labels it a disease. Therefore, the treatment becomes a drug rather than changing your diet, and that's where things get crazy, because now we're dosing up tens of millions of our children on Ritalin when the true answer to their [behavioral problems](#) or lack of focus is to immediately remove soft drinks, cookies, and sugary breakfast cereals from their [diets](#). If you feed your children [foods](#) that enhance their health -- that is, unprocessed foods like fruits, vegetables, whole grains and superfoods -- then they won't exhibit these behavioral problems.

In fact, the solution to all this is surprisingly simple -- we need to change the diets of our children. We need to take vending machines out of our [public school](#) systems. We need to reformulate school lunch programs so that they are feeding our children foods that promote learning and [mental health](#). We also need to educate parents about how to feed their children right so that they aren't so easily influenced by foods that their children want to eat.

And finally, we need to ban all advertising and marketing of unhealthy products to children. It should be illegal, in a civilized society, for companies that manufacture products that cause obesity and ADHD to promote those products to children, because it only creates a cycle of [disease](#) and chronic illness that brings society down, and the long-term effect of all of this is, of course, skyrocketing health care costs.

Once again, the answer to all of this is simply to change the foods and drinks that we feed our nation's children. The answer is certainly not to be dosing our children with powerful narcotics such as Ritalin, because right now in this country we are raising a generation of brain-numbed children through our public school system and through the reckless, widespread pharmaceutical prescribing habits of many [doctors](#) and psychiatrists.

<http://www.naturalnews.com/001868.html>



## Food Additives May Make Kids Hyper

Artificial Colors, Additives Boost Hyperactive Behavior in Toddlers and Children, Study Shows

By [Kathleen Doheny](#)

WebMD Health News

Reviewed by [Louise Chang, MD](#)

Sept. 6, 2007 -- Artificial coloring and preservatives in food can increase hyperactivity in kids, a new British study shows.

Researchers from the University of Southampton in the U.K. evaluated the effects of drinks containing artificial colors and additives on 3-year-old and 8- and 9-year-old British kids and found that the additives made hyperactive behavior worse -- at least up to middle childhood.

The link between such food additives and hyperactivity has been long debated. "The importance of our work is that effects have been found for 3-year-old and for 8- and 9-year-old children in the general population, not just for those diagnosed with attention deficit hyperactivity disorder ([ADHD](#))," says Jim Stevenson, PhD, professor of psychology at the university and a co-author of the study, published online Sept. 6 in *The Lancet*. "The size of the effects is similar to that found for children with ADHD."

But a U.S. expert said that scientific evidence overall does not point to a definitive link between additives and hyperactivity. He said it is premature, based on these study results, to suggest a public policy change. But the U.K. Food Standards Agency, which funded the study, has already revised its advice to parents about what to feed their children.

### The U.K. Study

The researchers evaluated the effects of different "cocktails" of beverages containing artificial food colors and other additives in 153 3-year-olds and 144 8- and 9-year-olds from the general population. In all, 267 of the 297 children completed the study and were evaluated by teachers and parents for behavior changes after drinking the trio of beverages.

The children drank two types of beverages with food additives commonly found in sweets, beverages, and other foods, and then a placebo drink (one with no additives). One mix had artificial colorings, including sunset yellow (also called E110), carmoisine (E122), tartrazine (E102), ponceau 4R (E124), and the preservative sodium benzoate. Another beverage mix included the current average daily consumption of food additives by the two age ranges of children and included quinoline yellow (E104), allura red (E129), sunset yellow, carmoisine, and sodium benzoate.

Teachers and parents evaluated behaviors after the children drank each type of beverage, and the older children also were tested on their attention spans.

## Study Findings

The older children's behavior was adversely affected by both of the mixtures with additives, compared with placebo, Stevenson's group found.

The younger children had more hyperactivity with the first mixture compared with placebo, but their responses to the second beverage varied greatly.

## Perspective and Reaction

About 2 million children in the U.S. have ADHD, according to the National Institutes of Health.

The link between food additives and hyperactivity in children has been debated for many decades, says Roger Clemens, DrPH, a professor of pharmacology and pharmaceutical sciences at the University of Southern California School of Pharmacy and a spokesman for the Institute of Food Technologists.

More than 30 years ago, a physician named Ben Feingold proposed a [diet](#) free of additives and other substances to calm behavior in children.

The U.K. study findings about the adverse effects of food additives are narrower than those found by Feingold, Stevenson tells WebMD. "Feingold made a very wide-ranging claim about many additives and also salicylates (a group of chemicals related to [aspirin](#) but also found in foods) adversely affecting children's behavior," he says. "We have shown an adverse effect for a specific set of food colors plus sodium benzoate, a preservative."

While the most recent study has found a link, Clemens contends that "the totality of the evidence indicates food additives, such as those cited in the [*Lancet*] paper, do not contribute to hyperactivity. While this study finds a link, most recent studies do not."

Stevenson disagrees. "The better studies conducted since the mid-1980s confirm that the removal of certain food additives can reduce hyperactivity in children diagnosed with ADHD," he tells WebMD.

Children's reactions to diet do vary, Clemens tells WebMD, and some children may react to additives and colors.

## What's a Parent to Do?

Is it worth trying to remove the additives from a child's diet? "It may not hurt, but it may not help," Clemens says.

Meanwhile, the U.K. Food Standards Agency issued new advice after the study was published, advising parents of children who show signs of hyperactivity to cut out the additives studied in the recent research.

Changing the diet is not a cure-all, Stevenson says.

<http://children.webmd.com/news/20070906/food-additives-may-make-kids-hyper>

## New Research Sheds Light on Chiropractic and ADHD

Recent research reporting on improvement in a 3 ½ year old boy undergoing chiropractic care reveals that chiropractic may play an important role in managing children with ADHD and related neurodevelopmental disorders.

FOR IMMEDIATE RELEASE

PR Log (Press Release) – Mar 05, 2009 – The research, reported in the Journal of Pediatric, Maternal & Family Health – Chiropractic

<http://www.chiropracticpediatricresearch.net> includes a review of the literature supporting the role of chiropractic in children suffering from a number of disorders that share their origin with ADHD.

“Research is revealing that there is a relationship between abnormalities in the spine, the nervous system and brain” stated Dr. Pamela Stone-McCoy, lead author of the paper. “Basic science research shows that the proper development of the brain relies on proper structure and movement of the spine from an early age.”

Research has shown not only that the developing brain relies on normal structural integrity and joint movement, but that complex neurochemical communication and pathways involved in helping humans to “feel good” are tied into spinal biomechanics and their related neurological pathways.

“It makes perfect sense when you think about it” stated Dr. Lisa Przybysz, a co-author on the paper. “We see this shocking increase in the diagnosis of ADHD and other behavioral disorders at the same time that we see a huge increase of sedentary behavior in our children.”

As pointed out in the paper, researchers believe that the increase in the diagnosis of such disorders as ADHD, pervasive developmental disorder, Tourette’s Syndrome, obsessive compulsive disorder and other neurodevelopmental disorders, have their root in a “perfect storm” of abnormal spinal development coupled with cultural changes.

“Not only does television watching, computer use, computer games and lack of exercise cause an increase in obesity and diabetes in our children” remarked Dr. Matthew McCoy, a chiropractor, public health researcher and editor of the journal that published the study, “These habits are also stunting the development of our children’s brains.”

According to McCoy “Children’s nervous systems need the constant stimulation of movement in order to develop and function properly. Abnormal position or movement of the spinal vertebra can develop and this can lead to nerve interference. It is this interference, called vertebral subluxations, that chiropractors correct.”

The child reported on in the study suffered from a number of health challenges including birth trauma, ear infections, and balance problems. With their child suffering from poor school performance and difficulty interacting with others, the parents sought chiropractic care in order to avoid resorting to medication. After just one month under chiropractic care the child began to improve. His grades and general health improved and he continues to receive chiropractic care on a regular basis. The authors of the study call for more research on the role of chiropractic care in these types of disorders.

#### About The Journal of Pediatric, Maternal & Family Health - Chiropractic

The mission of the JOURNAL OF PEDIATRIC, MATERNAL & FAMILY HEALTH – Chiropractic (JPMFH) is to disseminate to its reading audience peer-reviewed research and other information dealing with the concepts of health, wellness, and vertebral subluxation as they relate to children, mothering and families. It is devoted primarily to serving the chiropractic profession, other health care providers, the scientific and scholarly communities, and the public at large.

<http://www.prlog.org/10193883-new-research-sheds-light-on-chiropractic-and-adhd.html>

# Coffman Chiropractic Life Center

## Chiropractic Helps ADHD, A Case Study

The scientific periodical, the Journal of Pediatric, Maternal & Family Health, published a case study in the March 2009 issue documenting the improvement with chiropractic care of a 3 and a half year old boy who had been diagnosed with Attention Deficit / Hyperactivity Disorder (ADHD).

Authors of this case study report that experts now consider Attention Deficit / Hyperactivity Disorder (ADHD) to be the most commonly encountered neurobehavioral disorder of childhood. They report that some studies show a 4%-12% occurrence rate among school-aged children with boys being three times more likely to be diagnosed with ADHD than girls. They note that medically, ADHD is treated using psychostimulant drugs, such as Ritalin. They note that these drugs can cause a decrease in the ADHD symptoms but that the side effects may outweigh the benefits.

Side effects from drugs used to treat ADHD include but are not limited to: growth rate reductions, cardiovascular effects such as an increase in blood pressure and heart rate, insomnia, reduced appetite, anorexia, stomach aches, sleep disturbances, and dizziness. It has also been reported that most of the high profile school shootings were performed by boys who were on long-term medication for ADHD.

A chiropractic examination involving several procedures such as thermography, muscle testing, posture analysis, and range of motion was performed on the young boy in this case study. The presence of vertebral subluxation was made and a course of specific adjustive care was initiated. The care initially involved adjustments for 3 times a week for three weeks followed by one visit per week for the 8 following weeks. In addition to chiropractic care to reduce vertebral subluxation the mother was advised on decreasing food additives and sugar.

The outcome of chiropractic care for this young boy was very encouraging as both the boy's parents and teachers reported improvement in the boy's attention and energy levels following the initiation of chiropractic care. They also note that his grades have improved. His mother reported that he was able to win a chess tournament due to his improved ability to pay attention. The boy's mother noted that at the point of chiropractic care at the writing of this study, her son would show an increase in hyperactivity if she waited longer than two weeks to get him adjusted. At the writing of this case study, the young boy remained under chiropractic care at a frequency of twice monthly. Most notably, and perhaps most important, the case study reports that this 3 and a half year old boy is no longer on any related drug therapies.

Dr. Pamela Stone-McCoy, lead author of the paper noted, "Research is revealing that there is a relationship between abnormalities in the spine, the nervous system and brain. Basic science research shows that the proper development of the brain relies on proper structure and movement of the spine from an early age." Dr. McCoy went on to explain, "Childrens nervous systems need the constant stimulation of movement in order to develop and function properly. Abnormal

position or movement of the spinal vertebra can develop and this can lead to nerve interference. It is this interference, called vertebral subluxations, that chiropractors correct.&quot;

<http://coffmanchiropractic.com/templates20/article/1847.html>



## Chiropractic may help manage Tourette's, ADHD & OCD

Tuesday 13th October, 2009



[Chiropractic](#) may play an important role in managing neurodevelopmental disorders such as Tourette's syndrome, according to new research.

The research included a review of the role chiropractic plays in supporting children suffering disorders that share their origin with Tourette's including [ADHD](#) and [obsessive compulsive disorder \(OCD\)](#).

Tourette's syndrome is a condition that affects the nervous system and causes involuntary physical and verbal tics (movements and sounds).

Lead author of the research Dr. Pamela Stone-McCoy said: "Research is revealing that there is a relationship between abnormalities in the spine, the nervous system and brain.

Basic science research shows that the proper development of the brain relies on proper structure and movement of the spine from an early age."

Researchers believe the increase in disorders such as Tourette's, ADHD and OCD are rooted in abnormal spinal development and in order for the nervous system to function properly there must be constant stimulation of movement. Abnormal positioning or movement of the vertebrae can lead to interference called 'vertebral subluxations' and chiropractors look to correct this.

Recently, a 20 year-old woman with motor and vocal tics since the age of three underwent chiropractic treatment and was revealed as having vertebral subluxation. Over the course of a year's chiropractic she experienced significant improvement in the severity and frequency of her tics and was able to function better throughout the day.

Researchers have called for further research into chiropractic, vertebral subluxation and its effects on neurodevelopmental disorders.

<http://www.gotosee.co.uk/healthnews/2009/10/chiropractic-may-help-tourettes-adhd-ocd/>

## Chiropractic Treatments for ADHD

Published: 11/06/2009, Last Updated: 11/06/2009

By **LocateADoc.com Medical**

Attention deficit hyperactivity disorder (ADHD) in children and adults is often treated with Ritalin, a stimulant medication that helps improve brain activity and increases focus and concentration. However, some health experts believe that chiropractic therapy may be just as effective at improving the lifestyle of ADHD sufferers as prescription drugs. According to the American Chiropractic Association, some children who have been diagnosed with ADHD can benefit from a non-drug treatment that improves focus and makes it easier for them to concentrate for longer periods of time.

### [Link Between Chiropractic Treatment and ADHD](#)

[Chiropractors](#) and chiropractic neurologists have found several patterns in the brain activity and spinal health of ADHD patients. According to Dr. Robert Melillo, a chiropractic neurologist, "Motor activity—especially development of the postural muscles—is the baseline function of brain activity. Anything affecting postural muscles will influence brain development. Musculoskeletal imbalance will create imbalance of brain activity, and one part of the brain will develop faster than the other, and that's what's happening in ADHD patients." (Source: [ACAToday.org](#))

ADHD often triggers a number of behavioral problems and interferes with the learning process. These cognitive difficulties can often be traced to a neurological imbalance that may result in postural problems, extreme sensitivity to touch, sensitivity to certain sounds and tremors. In some cases, the imbalances can trigger migraines, headaches and other neurological problems.

When the spinal column is adjusted with chiropractic treatments, many of these neurological problems simply disappear. Chiropractic treatments release tension and blocked energy around the spine so that the neurons can communicate more effectively. When the brain and the spine are communicating clearly, the energy flow can improve thinking, focus and memory for the long-term. This process may also help reduce anxiety, stress and other negative effects commonly associated with spinal misalignment.

### [Managing ADHD with Chiropractic Therapy](#)

In addition to getting regular chiropractic, people suffering from ADHD may consider making certain lifestyle changes. The American Chiropractic Association encourages parents and individuals with ADHD to do the following:

- Eat mostly organic foods with as few pesticides or herbicides as possible
- Remove excess sugar from the diet
- Avoid excessive preservatives and additives
- Stop using pesticides and artificial products around the house
- Maintain a dairy-free and gluten-free diet to reduce risk of allergies
- Engage in natural relaxation activities on a regular basis

### Other Benefits of Chiropractic Therapy

Some of the other key benefits of [chiropractic](#) therapy include:

- Increased feelings of well-being
- Improved posture
- Better memory
- Improved sleep
- Reduced dependency on other prescription medications
- Reduced sensitivity to pain
- Improved functioning of joints and muscles

Doctors of [chiropractic](#) are trained to treat a number of neurological problems using non-invasive techniques and treatment modalities. If you or your child has been diagnosed with ADHD, you may be able to manage the symptoms of the disorder better with regular chiropractic treatments. A chiropractor will conduct a full spinal examination, nutritional analyses, and offer several treatment options to restore you or your child to good health. Set up a consultation with your chiropractor to find out what your treatment options may be.

<http://www.locateadoc.com/articles/chiropractic-treatments-for-adhd-2028.html>



## Chiropractic Care May Help Children With Learning Disorders And Dyslexia

Article Date: 20 Jan 2007 - 0:00 PST

A recent study, published in the Journal of Vertebral Subluxation Research (JVSR), suggests that chiropractic care may offer significant benefits to children suffering from learning disabilities and dyslexia.

The research was conducted by Swiss chiropractor Yannick Pauli, DC, president of the Swiss Chiropractic Pediatric Association, who specializes in the care of children suffering from learning and behavioral disorders.

"This review critically assessed eight previously published studies involving a total of 160 children," Dr. Pauli explained. "Although the results remain preliminary and more research is needed, the evidence strongly suggests that chiropractic care may help various cognitive abilities that are essential to learning."

Learning disorders and dyslexia affect between three and ten percent of school-aged children in the United States. Individuals with these disorders often suffer from low self-esteem, diminished motivation, loss of interest in school and problems in social functioning, and academic difficulties.

Pauli noted that the same areas of neurological dysfunction that can lead to learning disabilities and interfere with learning can also interfere with life skills, sport activities, and family and peer relationships.

"Learning disorders and dyslexia are increasingly recognized as a neurodevelopmental disorder," he stated. "Children suffering from those problems have parts of their brain that are not functioning adequately or are even delayed in their development. Among those dysfunctional areas is a small part located at the back of the brain called the cerebellum. The cerebellum plays a vital role in learning. It helps the brain coordinate and integrate the various sensory information, as well as to increase the processing speed of the brain."

Numerous factors can affect the proper development of the brain, including maternal [stress](#) during pregnancy, traumatic birth, poor diet, and sedentary lifestyle.

Pauli stressed that, contrary to popular belief, chiropractic is not restricted to [back pain](#) in adults. "The only source of constant stimulation to the brain comes from the spine and the postural muscles constantly adjusting to the force of gravity," he explained. "If

the daily physical stresses of life cause misalignments in the spine -- called vertebral subluxations by chiropractors -- the brain is not adequately stimulated. This can cause problems throughout the body."

He added that chiropractic adjustments, even when no back problems are evident, can improve the function of the spine and strongly stimulate nerve pathways to the cerebellum and other parts of the brain. "In the case of children, this may, in turn, help brain functions necessary for learning," he said.

Matthew McCoy, DC, editor of JVSR, commented that "this study is an exciting first step. It shows the beneficial effect of chiropractic care and may offer hope for thousands of suffering children."

This study is part of a larger effort undertaken by chiropractors to document and assess the potential benefits of chiropractic care in the field of learning disorders and other so-called mental disorders such as [ADHD](#), obsessive-compulsive disorders and even [autism](#)."

JVSR is a peer-reviewed scientific journal devoted to subluxation-centered chiropractic research affiliated with the World Chiropractic Alliance, an international organization representing doctors of chiropractic and promoting the traditional, drug-free and wellness-oriented form of chiropractic.

An abstract of the research report is available at <http://www.jvsr.com>.

JVSR is a peer reviewed scientific journal devoted to subluxation-based chiropractic research, affiliated with the World Chiropractic Alliance (WCA), an international organization representing doctors of chiropractic and promoting the traditional, drug-free and non-invasive form of chiropractic as a means of correcting vertebral subluxations that cause nerve interference.

World Chiropractic Alliance (WCA)  
Chandler, AZ 85224  
United States  
<http://www.worldchiropracticalliance.org>

<http://www.medicalnewstoday.com/articles/61111.php>

## Higher death rate discovered among kids on ADHD drugs

The Washington Post

Published: Tuesday, June 16, 2009

WASHINGTON -- Children taking stimulant drugs such as Ritalin to treat attention-deficit hyperactivity disorder are several times as likely to suffer sudden, unexplained death as children who are not taking such drugs, according to a study published Monday that was funded by the Food and Drug Administration and the National Institute of Mental Health.

While the numbers involved in the study were very small and researchers stopped short of suggesting a cause and effect, the study is the first to rigorously demonstrate a rare but worrisome connection between ADHD drugs and sudden death among children.

Doctors have speculated about such a connection in the past because stimulants increase heart rate and have other cardiovascular effects. Physicians are currently advised to evaluate patients for cardiac risks before prescribing the drugs, and FDA officials said Monday that those guidelines do not need strengthening in light of the new study.

About 2.5 million children in the United States take ADHD medications such as Ritalin and Adderall.

FDA officials said Monday that given the seriousness of ADHD and the rarity of sudden death -- which strikes fewer than 1 in 10,000 children -- the benefits of the drugs outweigh their risks. Agency officials urged parents to discuss concerns with doctors rather than deciding on their own to discontinue a child's medication.

The study's lead author, Madelyn Gould, a professor in child psychiatry and epidemiology at Columbia University, said she agreed with the FDA's advice.

"This study reports a significant association or 'signal' between sudden unexplained death and the use of stimulant medication, specifically methylphenidate," the study researchers concluded, referring to the chemical name of Ritalin.

Since an experimental study comparing the risk of sudden death among children taking medications with those not taking medications would have had to include millions of children to generate a useful scientific result, Gould and a number of colleagues conducted what is known as a matched case-control study: They obtained information about 564 children in the United States who died suddenly and inexplicably between 1985 and 1996.

For every such child, the researchers then found another child closely matched in terms of age, sex and other variables who died in a traffic accident; taking a stimulant drug is unlikely to have played any role in a child getting killed in an accident.

If stimulant drugs had nothing to do with sudden, unexplained death, then the number of victims on stimulant drugs who suffered such deaths and the number of victims on stimulant drugs who died in traffic accidents ought to have roughly been the same.

But Gould found that 10 children in the group that suffered sudden, unexplained death had been taking stimulant drugs, whereas only two children in the group killed in traffic accidents were taking such medications.

<http://www.heraldnet.com/article/20090616/NEWS02/706169881>



## ADHD Drugs increase sudden death risk

Posted on Tuesday, June 23, 2009 (EST)



*According to a new research, stimulant medications commonly prescribed to treat Attention Deficit Hyperactivity Disorder (ADHD) are associated with an increased risk of sudden death. Photo Credit: AFP*

According to a new research, stimulant medications commonly prescribed to treat Attention Deficit Hyperactivity Disorder (ADHD) are associated with an increased risk of sudden death.

June 23, 2009, (Sawf News) - According to a new research, stimulant medications commonly prescribed to treat Attention Deficit Hyperactivity Disorder (ADHD) are associated with an increased risk of sudden death.

The number of deaths, however, is very small. Other side effects of ADHD medication include headaches, sleep disorders, and a blunted appetite.

As many as 2.5 million children in the United States take ADHD stimulant medications, say the researchers. Many teens and even some adults take them for non-approved uses, such as improving focus and enhancing performance at work or at school.

The study found that the children and teens taking ADHD stimulant medications were seven times more likely to die suddenly than their peers.

"What we found -- to our surprise -- is that even if you take out confounding factors, the association between stimulant use and sudden death was still significant," said study author Madelyn Gould, a professor of clinical epidemiology in psychiatry at Columbia University/New York State Psychiatric Institute in New York City. "I'm confident the association is real and significant, but it's very rare. I don't want our findings to change prescribing patterns or for a parent to change their willingness to use stimulant medications if they're called for, but physicians should monitor patients with any new medication you give a young person."

Gould also confirmed that after ruling out factors such as a history of known cardiac problems; known causes of death, such as asthma or an accidental death; and other conditions, such as sickle cell anemia or cerebral palsy, only 10 sudden, unexplained deaths in children were recorded who were taking stimulant medications.

"Stimulants do increase blood pressure, and there have been reports of them changing heart rates," noted Gould.

Though the findings show a very small number of sudden deaths, the U.S. Food and Drug Administration have directed physicians to carefully factor in family history of heart problems or sudden deaths and perform a thorough physical exam before starting youngsters on ADHD medications. If any concerns arise, the child should be referred for an EKG (a heart rate test) or an evaluation by a pediatric cardiologist before medication is prescribed.

According to another report, stimulant drugs stunt children's growth. Children who never took stimulants were three quarters of an inch taller and 6 pounds heavier on average than children who took medication for three years.

If your child is on these drugs and there isn't any problem then there is no need to worry. Parents should not stop a child's medication abruptly just because these drugs pose greater risk to children who have some kind of heart disease.

<http://www.sawfnews.com/Health/58590.aspx>

## Concentration exercises called Neurofeedback help local teen with ADHD

By Vicky Eckenrode

Published: Thursday, July 9, 2009 at 8:18 a.m.

Last Modified: Thursday, July 9, 2009 at 8:18 a.m.



Photo by Mike Spencer

**Buy photo**  
Dylan Cummings, patient of Lee Porter at Allied Psychophysiology, undergoes neurofeedback treatments to help treat his ADHD.

Dylan Cummings stares at a television screen at scattered tiles. And then, by thinking, he gets them to rush together to form a complete cube.

Even Dylan, whose brain activity is pushing the pieces around, has a hard time explaining how he just did it.

"It's really, really hard to describe. Sometimes, I'll rhyme words in my head, and that'll help," he says.

Dylan, a 13-year-old with attention deficit hyperactivity disorder, regularly gets this one-hour treatment, or training session, in an attempt to retool part of his brain that produces higher frequency than normal.

"This is the area we picked to train," Lee Porter, owner of Allied Psychophysiology, said pointing to a part of the parietal lobe where Dylan has a sensor stuck through his hair onto his head and connected to a computer for the monitoring.

The idea is called Neurofeedback, and the training takes place on the miniscule scale of neurons, nerve cells that rapidly transmit electrochemical signals to and from the brain.

There are about 100 billion neurons in a person's brain, and Porter believes that symptoms from ADHD or traumatic brain injury can be addressed by conditioning pools of neurons to change their electrical activity.

The cube Dylan looks at and tries to move - sometimes it can be trying to make a race car go around a track - is actually a picture representation of electrical activity in his brain.

During his sessions, Porter or a technician sets a goal for where they want to get the electrical activity of a certain part of his brain to be. In Dylan's case during a recent session, that was lowering activity.

Whenever it decreases to that goal, the cube forms or the car moves, signaling Dylan has done something to make his brain signals respond how the program wants.

Porter said after enough times of getting that reward, the nerve cells can change their electrical output levels.

"They sit there and through trial and error and they learn how to replicate," Porter said about his patients. "They're doing something cognitively. It's really changed my whole outlook on how we learn."

Porter's background is as a clinical nurse who specialized in psychiatry and mental health patients. He was a psychiatric nurse in the Washington, D.C., area when he became a clinical nurse specialist.

He opened his practice in 2006 after working in different mental health centers.

He said the therapy works differently for each case, but Porter said it can take 30 to 40 sessions for some people.

A patient starts with an electroencephalography, or EEG, mapping to record electrical activity around the brain to map out how the brainwaves are functioning. Sensors are stuck on the person's head to record activity.

"Every patient is different. We get a functional picture of brain activity for each patient. There is some kind of quantifiable data that we can point to," said Jay Sanguinetti, a clinical neurosciences technician at Porter's practice.

They compare the electrical patterns from different parts of the person's scalp to what is considered normal activity.

Based on those comparisons, they decide what parts of the brain to focus on for conditioning.

After several sessions, Dylan said he is noticing improvement in his ability to concentrate during his daily activities.

"I feel like I can focus more on a specific thing," he said.

<http://www.starnewsonline.com/article/20090709/ARTICLES/907094000?Title=Concentration-exercises-called-neurofeedback-help-local-teen-with-ADHD>



## **Doctors, parents warn against some ADHD medications**

*Posted: Oct 03, 2009 9:27 AM Friday, October 2, 2009 9:27 PM EST*

They're supposed to calm down your kids, but some area pediatricians are warning against them.

Ritalin and Adderall are at the top of the list of medications used to treat attention deficit hyperactivity disorder or A-D-H-D. But not everybody's using those drugs properly.

Some doctors say they're seeing an increase in parents wanting those medications for their kids. But with recent reports pointing out Ritalin and Adderall's negative side effects, some mothers are steering clear of the stimulant drugs.

Reading a book is something mother Stasha Anderson says her 8 year old son Treshaun Warren used to have a hard time doing because he has the attention deficit hyperactivity disorder or A-D-H-D.

"I knew that he tried he wanted to do better he just couldn't," said mother Stasha Anderson.

But now Warrren takes Attend. It's a homeopathic herbal remedy aimed at curving the effects of ADHD.

"Now I take things seriously. I didn't used to take things seriously when I didn't have my medicine."

But most kids like Treshaun are taking Adderall or Ritalin.

"If they need it and it's very difficult for them to concentrate and for them to do well in school if they don't have the medication," said Family Physician Dr. Ken Elek.

But Family Physician Dr. Ken Elek says many parents don't understand ADHD but want the drugs for their children. Elek says he fears parents don't understand the disorder's side effects if taken unnecessarily.

"It increases the adrenaline levels in your system which does bad things to your heart," said Elek.

While drugs like Adderall may help a child accurately diagnosed with ADHD to focus, it's the negative side effects that discouraged Anderson.

"They lost their personality a lot of them were real emotional loss of appetite," said mother Stasha Anderson.

That's why Anderson says she chose Attend. But it's not approved by the Food and Drug Administration and therefore not recommended by doctors like Elek. But Warren argues that he's happier because of the herbal remedy.

"I'm making new friends and I'm starting to like school better," said Warren.

*Reporter: Nadia Crow*

<http://www.fox28.com/Global/story.asp?S=11250384>

## ADHD medications 'making kids suicidal'

Melbourne, Oct 13 : **The use of ADHD drugs is turning children as young as five into psychotics, a new [study](#) has revealed.**

Many of them have attempted suicide or are severely depressed while on the controversial drugs.

According to reports from the Therapeutic Goods Administration, at least 30 children have had severe psychotic episodes and wanted to kill themselves.

The number of serious reactions to ADHD drugs has doubled in three years, up to 827.

However, the true extent of the side effects is unknown, with many doctors and parents under-reporting the impact.

Child experts have cast doubts on the use of heavy stimulants. They believe that the drugs, including the failed adult anti-depressant Strattera, could be masking true psychological problems of children.

It is difficult to know whether the drugs are causing a [child](#) to become suicidal or if the tendencies already existed, said Dr Jon Juriedini, head of the Department of Psychological Medicine at Adelaide's Women's and Children's Hospital.

"It is difficult to say whether a drug is good or bad based on the adverse reactions," the Daily Telegraph quoted him as saying.

"However when a drug such as Ritalin or Strattera is not proving to be beneficial . . . you need to weigh up the side effects and ensure you don't get adverse reactions. There's very poor evidence that they are effective in anybody," he added.

"I think the medication has some side effects that increase suicide. If the underlying cause for a child's behaviour is something else like trauma or depression then (ADHD) masks the fact that kids need some other form of support," Childhood Foundation CEO Dr Joe Tucci said.

<http://www.newkerala.com/nkfullnews-1-130143.html>



## **ADHD Drugs Made Children Suicidal: Report**

Oct 22, 2009

By Anelise Quemerais

At least 30 Australian children have attempted suicide or are have experienced severe depression while on various medications to treat [attention deficit hyperactivity disorder](#) (ADHD), according to a report published in Sydney's *Daily Telegraph*.

Serious reactions to ADHD drugs among children have doubled in the last three years, according to the newspaper, which used data from the Therapeutic Goods Administration, Australia's regulatory agency for medical drugs.

"There's clear evidence that stimulant drugs tend to cause or precipitate psychotic episodes in children," said Dr. Jon Juriedini of Adelaide's Women's and Children's Hospital, according to *News.com*.

But Dr. Juriedini warned that it is difficult to determine if the medication alone caused the children to become suicidal or if other factors were involved.

In one case cited by the report, a seven-year-old boy tried to commit suicide while on the drug Ritalin. Another boy, an eight-year-old hallucinated that he saw spiders crawling on his skin after taking an ADHD drug, according to the report.

Some child experts criticize the use of heavy stimulants for children. Some drugs, they argue, mask children's psychological problems.

A spokesman for the Therapeutic Goods Administration said the *Daily Telegraph's* conclusions were taken out of proportion and misused raw data, according to *Pharmacy News*.

ADHD affects between eight and 12 percent of children worldwide.

<http://www.healthandperformanceinternational.com/healthnews/adhd-drugs-made-children-suicidal-report-8332210.html>



## **Ritalin Linked With Sudden Death of Children**

Wednesday, December 30, 2009 by: E. Huff, staff writer

(NaturalNews) Research from The National Institute of Mental Health has revealed that popular Attention Deficit Disorder (ADD) drugs like Ritalin are responsible for causing sudden death in many children. Study numbers indicate a 500 percent increased risk in childhood death from taking such mental health drugs.

For years, many experts, scientists, and health practitioners have speculated that ADD drugs are dangerous and can cause serious injury and death. Etta Brown, a licensed educational psychologist and author of *Learning Disabilities: Understanding the Problem and Managing the Challenges* explained in response to the study that drugs like Ritalin actually destroy the neural function in children's brains. As a result, children who have undergone treatment with Ritalin will actually have a much more difficult time processing information and learning new things.

Brown also notes that Ritalin is responsible for causing a permanent tic in the face, neck, and head of many of the children who have taken or are taking it. Ironically, Ritalin is responsible for causing far more serious neurological damage than the problems it is alleged to treat. Comprehensive studies over the years have revealed that while drugs like Ritalin visibly calm children, these drugs destroy their delicate, developing nervous systems and can permanently cripple their ability to function as normal human beings.

Ritalin remains one of the primary drugs prescribed for children with supposed behavioral problems. Rather than be encouraged to modify diet and increase exercise, children are being given drugs by their doctors instead. Increases in behavioral and learning problems among children have been increasing right alongside escalating levels of environmental toxins. Children are also spending more time at home alone while their parents work, eating greater amounts of junk food, and not getting adequate sleep.

Etta Brown, and others, suggest better nutrition, adequate sleep, and increased exercise and physical activity as a proper treatment for children with behavioral and learning disabilities. Nutrition alone is of vital importance since inadequate nutrient intake is arguably the most significant factor in children's inability to behave and learn. Proper brain function cannot be achieved if the brain is not being fed what it needs to process information and grow.

Parental guidance in regulating and maintaining a proper lifestyle for their children is also vital if true improvement is ever to be achieved. Medical professionals, child psychologists, and others will have to come to grips with the fact that drugs are not the answer to childhood developmental problems.

[http://www.naturalnews.com/027833\\_ritalin\\_sudden\\_death.html](http://www.naturalnews.com/027833_ritalin_sudden_death.html)



## ADHD and Oppositional Defiant Disorder Linked to Phthalate Exposure of Mother

Friday, March 12, 2010 by: Laura Weldon, citizen journalist

(NaturalNews) Prenatal exposure to phthalates has been linked to problem behavior in children. A collaborative study by Mount Sinai, Cornell University and U.S. Center for Disease Control and Prevention connects attention deficits and aggressiveness in children to levels of prenatal phthalate exposure.

Researchers analyzed phthalate metabolite levels in urine samples of 404 multiethnic women who were pregnant with their first babies. The mothers were not told of the urine test results. When contacted for follow up visits four to nine years later, 188 women consented. They completed questionnaires designed to determine their child's reasoning skills as well as behavior. They were interviewed by researchers unaware of the previous urine test results.

The study showed that mothers with higher concentrations of low molecular weight phthalates reported poorer behavior in their children. The behavioral indicators were highly consistent with conduct and reasoning problems associated with ADHD and Oppositional Defiant Disorder.

Phthalates are chemical compounds used in a vast array of consumer products. These include body care items such as nail polish, lotion, liquid soap, shampoo, perfume and eye shadow; food related products such as plastic bottles and food packaging; items meant for internal use such as enteric coatings of pills and supplements, medical catheters and blood transfusion devices; plus products including glues, lubricants, building materials, detergents, paints and textiles.

Phthalates are considered endocrine disruptors because they interfere with the body's delicate and very essential hormonal system. In test animals, phthalate compounds have altered reproductive anatomy and function. Research is also beginning to link endocrine disruptors like phthalates to auto-immune disorders and obesity.

In the last few years certain phthalates have been banned from toys and cosmetics. Some major retailers continue to phase out other phthalates. These actions help to reduce the phthalate load for babies and young children. But the study of prenatal phthalate exposure found that low molecular weight phthalates were the most strongly associated with later problems in children. These phthalates are the kind found in shampoos, body wash, lotions and other personal care items unaffected by recent U.S.

regulations--products often used by pregnant women.

Children face heavy exposure to phthalates from conception onward. The effect of these chemicals on physical, cognitive and emotional development is only beginning to be understood.

[http://www.naturalnews.com/028352\\_ADHD\\_phthalates.html](http://www.naturalnews.com/028352_ADHD_phthalates.html)

## ADHD study ties brain proteins to symptoms

Zosia Bielski

From Friday's Globe and Mail Last updated on Saturday, Sep. 12, 2009 04:01AM EDT

A brain-imaging study by U.S. researchers is providing the first definitive proof that patients with attention deficit hyperactivity disorder (ADHD) have lower-than-normal levels of the proteins that regulate our experiences of motivation and reward.

Deficits in the brain's dopamine-regulated reward system might help account for the clinical symptoms of ADHD, which include inattention and reduced motivation, as well as a susceptibility to drug abuse and obesity, said co-author Gene-Jack Wang, chair of the medical department at Upton, N.Y.'s Brookhaven National Laboratory.

The study, published in the current issue of the Journal of the American Medical Association, took nine years to complete: It took that long to find "drug-naive" participants, that is people who had not taken any medication to treat their ADHD, or abused drugs.

"There were several studies done before us that suggested the dopamine system may be involved. There were drug studies showing that yes, people with ADHD, once they received medication [such as] Ritalin, it helped them to relieve symptoms. But exactly which area and what happened we weren't quite clear on," Dr. Wang said.

ADHD is a childhood neurobiological disorder that often persists into adulthood. Three core symptoms are an inability to regulate attention and activity, as well as difficulty with inhibitory behaviour resulting in impulsivity, according to the Centre for ADHD/ADD Advocacy Canada.

The study involved 53 adult ADHD patients and 44 healthy control subjects.

The researchers used positron emission tomography (PET) to measure two parts of their dopamine system: receptors, which bind to the reward signals, and transporters, which take up and recycle excess dopamine after the signals go out. Lying in a PET scanner, each patient was injected with a small amount of a radiotracer compound, which bound itself to the receptors and transporters.

The findings revealed that, compared with healthy control subjects, ADHD patients had lower levels of dopamine receptors and transporters in the midbrain and accumbens, a pathway in the brain that manages reinforcement, motivation and learning associations between stimuli and reward.

The reason various subjects may be "not as interesting" for ADHD patients is that they cannot process the rewards, Dr. Wang said.

Although the research supports the continued use of stimulant medications that raise dopamine and increase attention - a common treatment for ADHD - they also suggest "interventions to enhance the saliency of school and work tasks to improve performance."

"There is room to develop," Dr. Wang said. "We cannot only rely on medication. It's overall treatment for the person, for example getting teachers to look at these people in different ways, and make lessons more interesting for them."

The findings may also help explain why ADHD patients are more likely to abuse drugs and become obese: Some of the Brookhaven studies suggested that patients may be unconsciously attempting to boost their dopamine levels. Finding ways to improve the function of the reward system could help mitigate these consequences, Dr. Wang said.

Umesh Jain, staff psychiatrist at the Centre for Addiction and Mental Health's division of child and family, said the research has broad implications beyond ADHD to "anything to do with impulse control."

"This study has lots to do with things that humans get themselves into trouble with: gambling, addictions, shopping, bulimia, mania," said Dr. Jain, who is also president of the Canadian Attention Deficit Hyperactivity Disorder Resource Alliance.

The study's lead author was Nora Volkow, director of the National Institute on Drug Abuse and a long-time collaborator on neuro-imaging research at Brookhaven.

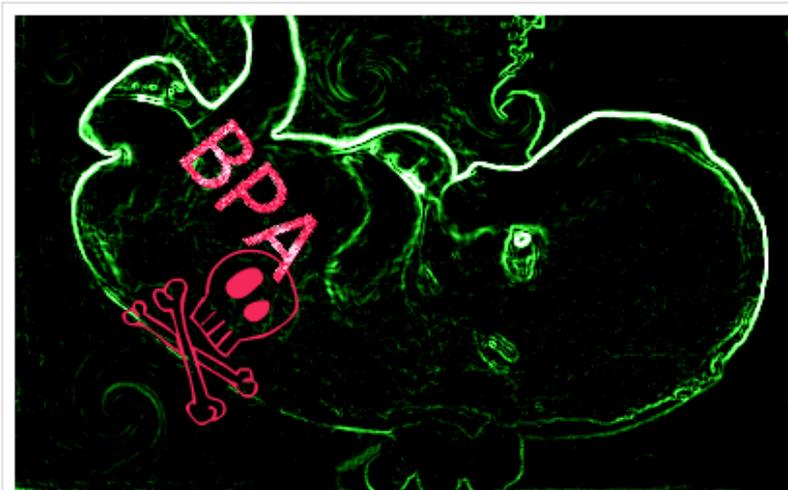
<http://www.theglobeandmail.com/life/adhd-study-ties-brain-proteins-to-symptoms/article1283314/>

## Bisphenol (BPA) affects brain development, hyperactivity, aggression - ADHD?

October 8, 12:52 PM

### Latest BPA research news

It seems that Bisphenol A (BPA), a key ingredient of polycarbonate – clear, shatter-resistant plastic and epoxy resins – may adversely affect brain development of babies in the womb, particularly if the exposure occurs early on in the pregnancy. This is according to research published [Insciences October, 6, 2009](#) by Prof. of Pediatrics, Bruce Lanphear, at the Univ. N. Carolina and Simon Fraser University Health, who found a link between prenatal exposure of a mother to BPA's and hyperactivity and aggression in their two year old daughters from that pregnancy. Male toddlers seemed unaffected but there was some evidence of anger internalization. These results are similar to work which showed that female baby mice exposed to BPA prenatally, showed more aggressive, male-like behavior



BPA Fetus Photobucket

### What do official government bodies say about BPA?

The current safety assessment of the US National Academy of Sciences ([NRC, 1983](#)), concludes that research incriminating BPA's, are mostly scare stories: human exposure to BPA from food contact, is minimal (0.000118mg/kg body weight) and poses no known risk to human health. This assessment was confirmed by European and Japanese commissions. Large scale research using very high levels of 50mg/kg/day found that BPA was not carcinogenic and did not cause reproductive or developmental problems.

The bodies dismissed the BPA-condemning-research, stating that, unlike their large scale

research, it was done on small samples and could not show repeatability. In the same way, the “Low-dose Hypothesis” was also dismissed by Dr. Rochelle Tye et. al, 2002. The low dose hypothesis proposes that continuous low exposures to the BPA can cause harm. Some research using this idea, showed that BPA acts as an endocrine neurotoxic disruptor mimicking estrogen.

### **Should we be heating plastics – making Ziploc baggie omelets?**

Plasticware such as baby bottles, clingwrap, aluminium can linings, toys and plastic baggies fell under suspicion in [2006, Science News report](#), causing San Francisco to ban BPA containing plastics . As a result, SC Johnson, manufacturers of Ziploc bags and Saran Premium wrap, removed the BPA, and other possible endocrine disruptors from their products ie. adipates (DEHA), phthalates (DEHP) and dioxin (a chlorine containing compound). So it’s probably safe to make those Ziploc omelets.

Again, in 2008, University of Cincinnati published in Toxicology, that BPA is released when heating polycarbonate bottles, and the release continued even after the heating stopped. The [US National Academy of Sciences, stated](#), however, that there was no cause for alarm – repeat research with improved experimental design found that baby bottles, after 4 – 8 cycles of sterilization, returned to a base level of BPA, no longer releasing higher levels. The highest level of BPA released was less than 1% of the 50mg test level that had no negative effects. Perhaps we should repeatedly sterilize all plasticware to get rid of excess BPA before using it.

### **Where could we be getting BPA?**

Despite these reassurances, if you'd prefer to be on the safe side, watch out for packaging of food and storage containers. BPA can come from food, drinking water and the air, even dental sealants. BPA in the urine of Japanese women dropped radically after the plastic packaging of the tea and coffee they used was changed. The [Hazardous Substances Data Bank](#), reported BPA in plastic sandals and gloves causing dermatitis. Other symptoms include photo-reactivity and eye, nose and throat irritation from inhalation from workers exposed to epoxy resin hardeners.

### **Should we ignore the “hype”?**

The [WWF site, May 2000](#), reminds us that babies and fetuses are very susceptible to hazardous substances owing to their small size and active development. Also of concern, is that BPA may be stored in the body - extremely high levels were found in the adipose tissue of women in SE Spain. If one considers that some of the refuted research, implicated BPA in prostate cancer (risen in the last 30 years to 1 in 6), breast cancer, diabetes, miscarriages, brain development, aggression in females and now hyperactivity, it’s probably better to be on the safe side and use glass or ceramic, paper and BPA-free plastic where possible.

<http://www.examiner.com/x-14183-Madison-Childrens-Health-Examiner-y2009m10d8-Bisphenol-BPA-affects-brain-development-hyperactivity-aggression--ADHD-p>



## **Children more likely to have attention, behavioral problems when exposed to phthalates in womb, New York study says**

Children exposed in the womb to chemicals in cosmetics and fragrances are more likely to develop behavioral problems commonly found in children with attention deficit disorders, according to a study of New York City school-age children published Thursday. Scientists said the findings uncovered a new problem that could be related to phthalates - effects on a child's developing brain. "More phthalates equaled more behavioral problems," said Stephanie Engel, an associate professor of preventive medicine at Mount Sinai School of Medicine. "For every increase of exposure, we saw an increase in frequency and severity of the symptoms," including attention problems, poor conduct and aggression. The connection was only detected for the types of phthalates used in perfumes, shampoos and other personal care products, not the ones found in vinyl toys and other soft plastics.

By Marla Cone  
Editor in Chief  
Environmental Health News

January 29, 2010



Stepheye/flickr

Children exposed in the womb to chemicals in cosmetics and fragrances are more likely to develop behavioral problems commonly found in children with attention deficit disorders, according to a [study](#) of New York City school-age children published Thursday.

Scientists at Mount Sinai School of Medicine reported that mothers who had high levels of phthalates during their pregnancies were more likely to have children with poorer scores in the areas of attention, aggression and conduct.

Children were 2.5 times more likely to have attention problems that were "clinically significant" if their mothers were among those highest exposed to phthalates, the study found. The types of

behavior that increased are found in children with Attention Deficit Hyperactivity Disorder and other so-called disruptive behavior disorders.

“More phthalates equaled more behavioral problems,” Stephanie Engel, a Mount Sinai associate professor of preventive medicine and lead author of the study, said in an interview Thursday. “For every increase of exposure, we saw an increase in frequency and severity of the symptoms.”

The connection was only detected for the types of phthalates used in perfumes, shampoos, soaps, nail polishes, lotions, deodorants and other personal care products. No behavioral effects were found for the phthalates used in vinyl toys and other soft plastics.

**“Clearly environmental toxicants play a role in child neurodevelopment, and phthalates, in particular, have been understudied in this area.” -Stephanie Engel, Mount Sinai School of Medicine**

A federal law that went into effect a year ago bans phthalates in children’s vinyl toys and other products. But there are no U.S. restrictions on phthalates in cosmetics and other personal care items. They are, however, banned in cosmetics sold in Europe. Manufacturers of the products maintain that the chemicals are safe after being widely used for about 50 years.

Scientists on Thursday said the study has uncovered a new problem that could be related to phthalates - effects on a child’s developing brain. Until now, most research has focused on their potential to block male hormones and feminize boys or contribute to male reproductive problems.

“Clearly environmental toxicants play a role in child neurodevelopment, and phthalates, in particular, have been understudied in this area,” Engel said.

Dr. Philip Landrigan, a pediatrician at Mount Sinai and director of the Children's Environmental Health Center, called it “a new area of concern” about phthalates.

“Clearly it needs to be replicated, as does any study that breaks new ground, but the study itself is very well done and very credible,” he said.

The new study involved 188 children between the ages of 4 and 9 who were born between 1998 and 2002, according to the study published online in the journal *Environmental Health Perspectives*. Most were from East Harlem or the Upper East Side of Manhattan, and three-quarters of them were low-income.



Holly Clark/flickr

The study has uncovered a new problem that could be related to phthalates - effects on a child's developing brain.

The children's scores were based on the answers that their mothers provided to standardized questions commonly used by psychiatrists and other clinicians to help diagnose attention deficit disorders. The mothers responded to 130 questions designed to detect problematic behaviors on a 4-point scale ranging from "never" to "almost always" and to 86 questions on another survey designed to measure cognitive function, such as memory.

Some effects were stronger in boys than girls, but the associations to the chemicals were still considered significant in the girls, Engel said.

The researchers did not use doctors or other clinicians to evaluate the children. Instead, the findings were based on the mothers' evaluations.

"A parent's report about a child's behavior is certainly subjective," Engel said. But she added that mothers have been found to be very accurate in assessing poor conduct, aggression and attention problems.

The mothers were tested for phthalates during pregnancy, the most sensitive time for a child's brain development. In a study published last year, Korean researchers linked childhood exposure to phthalates to ADHD.

Shanna Swan, a University of Rochester epidemiologist whose research linked phthalates with feminized genitalia in baby boys, called phthalates a "complicated picture" for scientists to unravel because there are many different compounds and so many potential effects to look for.

But she said she found it "very interesting" that Engel and her team found "so many negative associations" for the phthalates with low molecular weights – the ones used in personal care products.

Swan was surprised that most of the effects were correlated with a phthalate metabolite, called MMP, that is found in the lowest concentrations in people.

"It is not a metabolite usually thought of as toxic," said Swan, director of the Center for Reproductive Epidemiology at the University of Rochester School of Medicine and Dentistry.

Dr. Sheela Sathyanarayana, an assistant professor of pediatrics at Seattle Children's Hospital who also has researched phthalates, agreed, saying that it was an unusual outcome that would need to

be replicated in another study. "Most of the literature points to the high molecular weight phthalates (DBP and DEHP) causing toxicity and leading to health impacts. This is definitely a new finding," she said.

**“The percentage of kids diagnosed with behavioral problems has increased over time and it’s not clear why.” -Stephanie Engel**

The researchers said they do not know how prenatal exposure to phthalates may lead to behavioral problems. But they theorize that it may be because the chemicals disrupt thyroid hormones, which are critical to an infant’s brain development.

In April, the Mount Sinai team reported effects in the same group of children when they were newborns. The girls - but not the boys - with high exposure to phthalates had differences in alertness and orientation, two indicators of neurodevelopmental effects in infants, according to that [study](#) published in the journal Neurotoxicology.

The new study raises the question of whether phthalates and other hormone-disrupting chemicals could be playing a role in the increasing rate of attention deficit disorders diagnosed in children. However, phthalates have been around for about 50 years, and it is unknown whether people’s exposure to them has increased. Lead is another contaminant that has been linked to ADHD.

“The percentage of kids diagnosed with behavioral problems has increased over time and it’s not clear why,” Engel said. “It would be a stretch to attribute it all to endocrine disruptors. There are probably multiple different causes.”

Nearly every human tested has traces of phthalates in his or her body, and women are most highly exposed.

“There is sufficient evidence to be concerned about phthalates, and it’s prudent to reduce exposure as much as possible,” Engel said. “But they are so ubiquitous right now it’s hard to eliminate exposure without regulatory action.”

Engel said people should “press legislators” to restrict phthalates in adult, as well as children’s, personal care products.

Fetuses are “uniquely vulnerable, particularly for endocrine disruptors,” she said. “But we are very concerned about the problem of post-natal exposure as well. The kids continue to be exposed as they grow up.”

Consumers who want to learn more about the ingredients of their brands of cosmetics can use a database compiled by the Environmental Working Group at <http://www.cosmeticsdatabase.com/index.php>. However, manufacturers don’t always list phthalates on their labels.

Phthalates are solvents that are often used in cosmetics because they help retain fragrances and help lotions penetrate the skin. Many nail polish manufacturers have already eliminated phthalates, which had been commonly used to make the polish flexible and durable.

The principal researcher for the study was Mary Wolff, director of Mount Sinai’s Center for Environmental Health and Disease Prevention Research. The team also included two researchers from the U.S. Centers for Disease Control and Prevention and a Cornell University scientist.

<http://www.environmentalhealthnews.org/ehs/news/phthalates-and-attention-deficits>

## Children With ADHD at Risk for Zinc and Copper Deficiency

from [Medscape Medical News](#)

Caroline Cassels

November 3, 2009 (Honolulu, Hawaii) — Overall nutritional status in children with attention deficit hyperactivity disorder (ADHD) shows that this patient population is at risk for low trace mineral status, including deficiencies in zinc and copper — minerals that may play a crucial role in the production of dopamine, norepinephrine, and melatonin, which regulates sleep.

Presented here at the American Academy of Child & Adolescent Psychiatry 56th Annual Meeting, a study conducted by investigators at the University of British Columbia and the Children's and Women's Health Centre in Vancouver, Canada, showed among 44 children aged 6 to 12 years with ADHD, rates of zinc and copper deficiency were 45% and 35%, respectively.

"There are a lot of studies in ADHD children looking at sugar intake, etcetera, but no one has ever actually looked at the dietary intake and subsequent nutrients of children with ADHD," principal investigator Margaret Weiss, MD, PhD, told *Medscape Psychiatry*.

With first author Joy Kiddie, RD, the study included 44 drug-naive and drug-treated ADHD children aged 6 to 12 years. Of these children, 17 were medication-naive, 18 were taking stimulant medications, and 9 were taking atomoxetine.

The children's dietary intake was assessed using a 3-day food record and 24-hour recall. The food record assessed macronutrient/micronutrient intake relative to the recommended dietary allowances and food group recommendations.

The 24-hour recall was used to assess the percentage of low-nutrient density foods, or so-called "junk food" intake.

The study revealed that serum zinc below laboratory norms was present in 77% of children aged 6 to 9 years and 67% of children aged 10 to 12 years, and 25% of the



**Dr. Margaret Weiss**

children were below the cutoffs for zinc deficiency. Serum copper below laboratory norms was present in 23% of children.

### **No Difference in Junk Food Consumption**

The investigators found that the study sample consumed comparable levels of protein, carbohydrate, and fat compared with recommendations and population norms, and ADHD children were no different than population norms in intake of low-nutrient density foods. However, 40% of the children consumed less than the recommended levels of meat and meat alternatives and had low levels of related micronutrients that are essential cofactors for the body's manufacture of dopamine, norepinephrine, and melatonin.

Measurement of blood levels of micronutrients replicated previous findings of zinc deficiency and demonstrated copper deficiency for the first time. In addition, a majority of children had serum ferritin levels lower than 50 µg/mL, a level considered necessary for entry into the central nervous system.

"There is a commonly held belief that children with ADHD eat more junk food than other children, but the study did not confirm this view," said Dr. Weiss. "However, our data suggest children with ADHD are nutritionally different from the rest of the population in that they eat less meat, fish, and poultry and have low levels of related micronutrients that are essential cofactors for the body's manufacture of dopamine norepinephrine, and melatonin."

### **Need to Focus on Nutrition**

In a separate study of zinc supplementation also presented here at the American Academy of Child & Adolescent Psychiatry 56th Annual Meeting, Eugene Arnold, MD, and colleagues from The Ohio State University, Columbus, found that supplementation with 15 or 30 mg of elemental zinc made no difference to symptoms compared with placebo in a group of children diagnosed with ADHD after 13 weeks of treatment.

This study, said Dr. Weiss, raises many questions because previous research has suggested that zinc supplementation does make a difference. "It may not just be a question of what children eat but also whether they can absorb or metabolize zinc, or whether they are excreting it. In other words, is there some kind of phenomenon of zinc wasting?" she said.

Dr. Weiss said that, based on this study, it is too early to make any clinical recommendations beyond ensuring that children with ADHD have an adequate diet that includes appropriate levels of fish, meat, and poultry. However, she acknowledged, this can be a challenge in children on stimulant medications because of the drugs' appetite-suppressing effect.

She added that it is important that clinicians with expertise in the assessment of nutritional status provide parents with information about good nutrition. "Traditionally, the emphasis on ADHD has been on treating the core symptoms of the disorder, but it is also important to assess and manage basic issues of health such as sleep, nutrition, and growth. Good health makes a difference," said Dr. Weiss.

*Dr. Weiss has disclosed that she is on the advisory board of and/or has received research or grant support from Eli Lilly and Company, Janssen, Purdue University, Shire Pharmaceuticals Inc, and Takeda Pharmaceuticals North America, Inc.*

American Academy of Child & Adolescent Psychiatry 56th Annual Meeting: Abstract 17.3. Presented October 31, 2009.

<http://www.medscape.com/viewarticle/711738>



## Chiropractic Adjustments Helping Kids With ADHD

Apr 23, 2007 11:29 pm US/Eastern

*by Dr. Mallika Marshall*

BOSTON (WBZ) — During softball games, Newton freshman Sophie Bell focuses on getting her opponents out. But just a few years ago, she couldn't concentrate on that or anything else.

"School was getting more difficult and she was having a harder time keeping up," said mother Megara Bell.

Sophie started taking medication, the most accepted treatment for attention deficit disorder. But there were side effects.



◀ 1 of 1 ▶

[Click to enlarge](#)

Dr. Rosen adjusts Sophie Bell  
in his Wellesley office.  
WBZ

"All I remember was being really shaky," said Sophie.

Sophie's family wanted an alternative so they turned to Dr. Martin Rosen, a Wellesley chiropractor.

Rosen believes ADHD can start with a misalignment in the spine which affects the body's balance and ultimately how the brain functions.

"It's irritating, so they start to move and they start to fidget in their seat. The system starts to fire off nerve endings and the constant firing will look very much like hyperactivity," said Dr. Rosen.

In many patients, chiropractic adjustments can solve the problem.

"Just clearing out the nervous system imbalance will allow the brain to reboot itself," adds

Rosen.

Megara Bell noticed a difference immediately.

Within months of starting chiropractic treatment, Sophie was able to stay focused on homework and stop taking her medication completely.

"I was on task and doing things...and I felt really great," said Sophie.

More studies are now being done on this alternative treatment.

Best-selling author and ADHD expert Ned Hallowell says he's open to new options.

"What I say to my patients is look, I'll learn along with you. As long as it's safe and it's legal, let's look into it," said Dr. Hallowell.

Sophie and her family can't believe the results.

"It was not just the difference in school, it was the difference in all the other things that she does. She does have her guitar and practices every day which I think is amazing," said Megara.

Treatments vary from patient to patient but they usually start with several sessions a week for six weeks. Sophie only needs periodic maintenance adjustments.

Chiropractic treatment is covered by health insurance.

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<http://wbztv.com/specialreports/Chiropractic.Adjustments.ADHD.2.586689.html>



[Dr. Robert Wrieden DC PLLC Chiropractic Blog](#)

## **Chiropractic Care Helps Child with ADHD**

Posted 03:05 PM May 31, 2009

A recent article published in *The Journal of Pediatrics, Maternal and Family Health*, March 2009, reports the case study of a 3-year old male patient who had been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD).

The child's mother indicated that her son's birth was traumatic and complicated, including a fractured left clavicle during birthing. The boy showed signs of ADHD from the age of two, including falling out of bed as many as three times a night and having a history of ear infections and respiratory problems. The child's pre-school teacher referred him to a psychologist because of temper tantrums and biting incidents with other children.

"The usual medical treatment for children diagnosed with ADHD is a psycho-stimulant drug, like Ritalin," said Norwich-based Dr. Robert Wrieden, D.C. "This type of treatment is reported to be about 70% effective, but there are serious side-effects of these drugs, like stunted growth, insomnia, loss of appetite, dizziness, stomach aches, and, in some instances, heart and blood pressure problems."

In the case of this 3-year old, the mother wanted to try chiropractic care as a way to avoid using the drug regimen usually prescribed. The examining chiropractor, using a non-intrusive device known as an Insight Subluxation Station, conducted thermal scans of the child's spine and found the existence of a *subluxation* in the child's upper cervical area.

"A subluxation is a misalignment of the spine that disturbs normal nervous system function," said Dr. Wrieden. "Many chiropractors, including myself, have this technology that allows them to conduct thermal and Surface Electromyography (sEMG) tests to assist in locating where such conditions exist."

The patient underwent chiropractic care, including spinal adjustments, with frequency of care initially set at three times per week for the first three weeks, then once a week, then once every two weeks. After one month, the mother and teacher noted improved attention and less hyperactivity. The patient's thermal scans also showed improvement. The child remains on a twice-monthly plan of chiropractic care, with no drug therapy, and continues to show improvement.

"This is just one case study," explained Dr. Wrieden, and more studies are needed before any absolute conclusions can be drawn."

Dr. Wrieden's chiropractic practice features the Insight Subluxation Station. This technology is certified by the Space Foundation, which was co-founded by NASA, and is used by 8,000 chiropractors worldwide to measure nervous system health and performance.

<http://www.merchantcircle.com/blogs/Dr.Robert.Wrieden.DC.PLLC.607-336-7030/2009/5/Chiropractic-Care-Helps-Child-With-ADHD/245803>

## **Chiropractic Care Helps Child with Attention Deficit Hyperactivity Disorder**

Posted Jan 03 2010 4:58pm

An article published in *The Journal of Pediatrics, Maternal and Family Health*, March 2009, reports the case study of a 3-year old male patient who had been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD).

The child's mother indicated that her son's birth was traumatic and complicated, including a fractured left clavicle during birthing. The boy showed signs of ADHD from the age of two, including falling out of bed as many as three times a night and having a history of ear infections and respiratory problems. The child's pre-school teacher referred him to a psychologist because of temper tantrums and biting incidents with other children.

"The usual medical treatment for children diagnosed with ADHD is a psycho-stimulant drug, like Ritalin," said Harrisburg, NC based Chiropractor, Dr. Andrea Dobrich. "This type of treatment is reported to be about 70% effective, but there are serious side-effects of these drugs, like stunted growth, insomnia, loss of appetite, dizziness, stomach aches, and, in some instances, heart and blood pressure problems."

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<http://www.wellsphere.com:81/life-as-a-doc-article/chiropractic-care-helps-child-with-attention-deficit-hyperactivity-disorder/983332>





## **Chiropractic instead of drugs for ADHD: study links stimulant use to sudden death; media and current research suggest chiropractic is a safe alternative**

By Crownfield, Peter W.

Publication: Dynamic Chiropractic

Date: [Wednesday, July 29 2009](#)

A study published in the American Journal of Psychiatry suggests certain stimulant medications used to treat attention deficit hyperactivity disorder (ADHD) may cause sudden, unexplained death, (1) adding to previous reports emphasizing the potential dangers of such medications. (1-2) Combined with recent research from the International Pediatric Chiropractic Association (ICPA) suggesting the benefits of chiropractic care for ADHD sufferers and a CBS Early Show segment following the study's release that mentions chiropractic and other natural options, drug-free management of this complex condition may be one small step closer to becoming reality.

Funded by the U.S. Food and Drug Administration (FDA) and the National Institute of Mental Health, a branch of the National Institutes of Health, evaluated stimulant use in 564 children and teenagers ages 7-19 who died unexpectedly, but had no known history of life-threatening illness or defined cause of death, such as homicide or accident (the study group); and 564 age-matched children/teens who died in motor vehicle accidents (the control group).

Comparing the two study groups, researchers found that a significantly higher number of children/teens in the study group had taken methylphenidate prior to their death compared to the control group. Methylphenidate is the generic form of brand-name ADHD drugs such as Ritalin and Concerta.

In their conclusion, the authors state: "This study reports a significant association or 'signal' between sudden unexplained death and the use of stimulant medication, specifically methylphenidate. While the data have limitations that preclude a definitive conclusion, our findings draw attention to the potential risks of stimulant medications for children and adolescents." They add: "Although sudden unexplained death is a rare event, this finding should be considered in the context of other data about the risk and benefit of stimulants in medical treatment."

Jeanne Ohm, executive director of the ICPA, commented on the findings in an official press release, noting that "[p]revious evidence related to the side effects of these drugs have kept us wary of their justified use for many years. We are pleased to finally see these concerns made public so parents are aware of the potential consequences of these drugs and can make informed decisions accordingly." (2)

In its press release, the ICPA noted that last year the American Heart Association recommended children with ADHD undergo cardiac screening tests prior to taking stimulant drugs for their condition and called for research to assess the potential risk of sudden death. Moreover, according to the Gould study, there have been case reports of stroke and myocardial infarction in patients taking Ritalin within therapeutic ranges. While the FDA asserts that the benefits of these medications outweigh the risks and says there were problems with the study's methodology--particularly that the numbers were small; only 10 children in the study group were found to be taking stimulant drugs, compared to two children in the control group--it also says current guidelines recommending physicians evaluate for cardiac risks before prescribing ADHD drugs need to be strengthened. (3)

A Washington Post article (3) discussing the study paraphrases Benedetto Vitiello from the National Institute of Mental Health, who believes the findings have relevance despite the study limitations: "[G]ould's study underscores that ADHD drugs are not innocuous. Indiscriminate prescription of the drugs for general behavioral problems and the growing number of healthy teenagers and adults using the drugs to boost mental performance could have deadly consequences."

Where can children with ADHD turn besides potentially dangerous medications? Chiropractic care, says the ICPA in its release, referencing a recent study titled "The Chiropractic Care of Patients With Attention Deficit Disorder: A Retrospective Analysis." According to the ICPA, the study, which has been accepted for publication, "shows promising results for children under chiropractic care." Dr. Ohm also references "Adverse Effects Associated With Chiropractic Care for Children," accepted for publication by a "major biomedical journal," which reports only "minimal and minor adverse effects associated with care."

The CBS Early Show's June 15 "Healthwatch" segment also recommended chiropractic care as a potential treatment option for children with ADHD. (4) In a segment titled "ADHD Drug Warning," medical correspondent Dr. Jennifer Ashton told CBS anchor Julie Chen, "There have been studies that have shown complementary or alternative therapies [such as] chiropractic care or dietary changes can be beneficial in some children who are on ADHD medication ... either in place of or in conjunction with [medication]." Dr. Ashton also emphasizes the risks associated with ADHD drugs, stating that they can have "potent effects on the body," including elevated heart rate and blood pressure, which she says may account for the connection between stimulant use and sudden death (what she refers to as sudden cardiac death) seen in the study.

The CBS segment mentions that 4.5 million children and adolescents in the U.S. have been diagnosed with ADHD, an estimated 2.5 million of whom are taking medication for their condition. With those staggering numbers and the latest research suggesting the potentially lethal dangers of prescription drugs in mind, all parents and patients should be aware of natural alternatives such as chiropractic care and weigh the risks vs. benefits associated with ADHD medications.

## REFERENCES

(1.) Gould MS, Walsh T, Munfakh JL, et al. Sudden death and use of stimulant medications in youth. American Journal of Psychiatry, June 15, 2009; published online ahead of print.

(2.) Press release from the International Chiropractic Pediatric Association, received June 18, 2009.

(3.) Vedantam S. "Study Shows Possible Link Between Deaths and ADHD Drugs." Washington Post, June 16, 2009.

(4.) "ADHD Drug Warning." CBS Early Show, June 15, 2009.

BY PETER W. CROWNFIELD, EXECUTIVE EDITOR

<http://www.allbusiness.com/medicine-health/diseases-disorders/12684793-1.html>

## Common Plastics Chemicals Phthalates Linked to ADHD Symptoms

ScienceDaily (Nov. 19, 2009) — Phthalates are important components of many consumer products, including toys, cleaning materials, plastics, and personal care items. Studies to date on phthalates have been inconsistent, with some linking exposure to these chemicals to hormone disruptions, birth defects, asthma, and reproductive problems, while others have found no significant association between exposure and adverse effects.



*Child's cup. Phthalates are important components of many consumer products, including toys, cleaning materials, plastics, and personal care items. Researchers found a significant positive association between phthalate exposure and ADHD, meaning that the higher the concentration of phthalate metabolites in the urine, the worse the ADHD symptoms and/or test scores. (Credit: iStockphoto)*

A new report by Korean scientists, published by Elsevier in the November 15th issue of *Biological Psychiatry*, adds to the potentially alarming findings about phthalates. They measured urine phthalate concentrations and evaluated symptoms of attention-deficit/hyperactivity disorder (ADHD) using teacher-reported symptoms and computerized tests that measured attention and impulsivity.

They found a significant positive association between phthalate exposure and ADHD, meaning that the higher the concentration of phthalate metabolites in the urine, the worse the ADHD symptoms and/or test scores.

Senior author Yun-Chul Hong, MD, PhD, explained that "these data represent the first documented association between phthalate exposure and ADHD symptoms in school-aged children." John Krystal, MD, the Editor of *Biological Psychiatry*, also commented: "This emerging link between phthalates and symptoms of ADHD raises the concern that accidental environmental exposure to phthalates may be contributing to behavioral and cognitive problems in children. This concern calls for more definitive research."

The U.S. Centers for Disease Control and Prevention, in the Summary of their 2005 Third National Report on Human Exposure to Environmental Chemicals, state that "very limited scientific information is available on potential human health effects of phthalates at levels" found in the U.S. population. Although this study was performed in a Korean population, their levels of exposure are likely comparable to a U.S. population.

The current findings do not prove that phthalate exposure caused ADHD symptoms. However, these initial findings provide a rationale for further research on this association.

<http://www.sciencedaily.com/releases/2009/11/091119101042.htm>

## Found, the chemical that could spell an end to ADHD

By [Jenny Hope](#)

Last updated at 8:07 AM on 09th September 2009



Breakthrough: Children with ADHD have low levels of a brain chemical vital for making them pay attention in return for rewards (posed by model)

Hyperactive children have low levels of a brain chemical vital for causing them to pay attention in return for rewards, claim researchers.

It is the first objective evidence that deficiencies in the brain's system for reward and motivation are linked to the disorder affecting thousands of children.

Brain imaging tests run by US researchers show a lack of dopamine - a chemical messenger - in children with attention deficit hyperactivity disorder (ADHD).

The chemical is essential for helping trigger behaviour involving motivation and reward, which results in reduced levels of attention and behavioural problems.

Up to 100,000 British children with ADHD are given the drug Ritalin, which appears to act by releasing dopamine to improve concentration.

Around three to seven per cent of children are believed to have ADHD, with many continuing to experience problems as adults.

Lead researcher Nora Volkow, of the Brookhaven Laboratory, [New York](#), said it was the first definitive evidence that patients suffering from ADHD have lower-than-normal levels of proteins essential for activating the brain's reward system.

She said 'These deficits in the brain's reward system may help explain the clinical symptoms of ADHD, including inattention and reduced motivation, as well as the propensity for complications such as drug abuse and obesity among ADHD patients.'

Results from previous studies had been less conclusive because in many cases patients had undergone treatment or underlying conditions that may have affected the functioning of the dopamine system, she said.

The latest study looked at 53 adults with ADHD who had never received treatment and 44 healthy people.

The researchers used a PET (positron emission tomography) scanner to measure two markers of the dopamine system.

Lying in a PET scanner, each patient was injected with a tiny amount of a 'radiotracer' compound designed to bind to dopamine receptors and transporters in a bid to track their activity levels.

The results 'clearly showed' that ADHD had lower levels of dopamine active in the areas of brain important for processing motivation and reward, compared with healthy people.

The measurements of dopamine markers correlated with clinical symptoms such as reduced levels of attention, said a report in the Journal of the American Medical Association.

Funding for the study came from US National Institutes on Mental Health, Alcohol and Drug Abuse.

Dr Volkow said the results meant current use of medication such as Ritalin was justified because it would be compensating for poor dopamine levels in ADHD patients.

She said 'Our findings imply that these deficits in the dopamine reward pathway play a role in symptoms of inattention in ADHD and could underlie these patients' abnormal responses to reward.'

'This pathway plays a key role in reinforcement, motivation, and in learning how to associate various stimuli with rewards.'

'Its involvement in ADHD supports the use of interventions to enhance the appeal and relevance of school and work tasks to improve performance.'

'Our results also support the continued use of stimulant medications - the most common pharmacological treatment for ADHD - which have been shown to increase attention to cognitive tasks by elevating brain dopamine.'

Co-author Gene-Jack Wang, chairman of Brookhaven's medical department, said: 'Other studies from our group suggest that patients who abuse drugs or overate may be unconsciously attempting to compensate for a deficient reward system by boosting their dopamine levels.

'Finding ways to address the underlying reward-system deficit could improve the direct clinical outcome of ADHD,' he added.

<http://www.dailymail.co.uk/health/article-1212141/Found-chemical-spell-end-ADHD.html>

## How Chiropractic can Help ADD/ADHD

Posted Nov 04 2009 10:02pm

By [Dr Duncan DC](#)

The video posted suggested that chiropractic may help people with ADD/ADHD, but it doesn't say how. In fact it only mentions it in passing after explaining some of the dangers of the drugs used to treat such conditions. So [here](#) is a collection of some of the research. A single study by Mississippi State University found that specific chiropractic treatment improved results in the majority of ADD/ADHD sufferers. You can find that study [here](#). Of course more research is needed, but so far medication has only been shown to keep ADHD controlled, not cure it. Chiropractic care has shown actual improvement without the risks of medication.

How does chiropractic treatment accomplish the improvement. [Dr. Robert Melillo](#), a chiropractic neurologist said, "Motor activity—especially development of the postural muscles—is the baseline function of brain activity. Anything affecting postural muscles will influence brain development. Musculoskeletal imbalance will create imbalance of brain activity, and one part of the brain will develop faster than the other, and that's what's happening in ADHD patients." He also pointed out that "True ADHD patients have other signs — tics, tremors, balance or postural problems, or unusual sensitivity to touch, movement, sights, or sounds."

Doctors of chiropractic and chiropractic neurologists don't treat ADHD they treat dysfunction in the spine and body. The brain is stimulated by this stimulation of weakened function through adjustments. The body is aided in healing it's self decreasing the imbalances. So instead of filling the gap with drugs the body may become dependent on, the brain is able to develop where it was otherwise weak through stimulation caused by chiropractic adjustments.



While chiropractic may provide a good treatment for many suffering from these conditions mechanical stimulation is not the only answer and dietary or life changes should also be included in treatment. Processed food containing food dyes, sugar, preservatives,

additives, and pesticides or other chemicals should be avoided. Elimination diets can be used to determine if there is a particular food that provokes negative responses in that person. Food has a chemical effect on our bodies just like medication does. Other life changes such as exercise and identifying learning patterns will also be beneficial.

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<http://stanford.wellsphere.com/complementary-alternative-medicine-article/how-chiropractic-can-help-nbsp-add-adhd/860037>



## **Inconsistent Short Term Memory Linked To ADHD**

Article Date: 27 Mar 2009 - 3:00 PDT

Written by: Catharine Paddock, PhD

Researchers in the US found that children with attention-deficit hyperactivity disorder (ADHD) showed more inconsistent reaction times when doing short term memory exercises compared to peers of the same age who did not have the disorder.

The study was the work of associate professor Dr Julie Schweitzer of the M.I.N.D. Institute & Department of Psychiatry and Behavioral Sciences, University of California-Davis, and colleagues, and is published in the journal *Child Neuropsychology*.

Schweitzer told the press that:

"We think poor working memory is a characteristic present in many children and adults with ADHD."

She said the study helps to explain why "working memory may be fine at one moment and poor at another, just as one day a child with ADHD seems to be able to learn and focus in class and on another day seems distracted and not paying attention."

About 4.4 million American children aged 4 to 17 have been professionally diagnosed with ADHD in the US, according to estimates from the US Centers for Disease Control and Prevention (CDC). And in 2003, the parents of 8 per cent of schoolchildren said their child had the disorder.

Schweitzer and colleagues say their results support the idea that inability to respond consistently while doing a task where he or she has to use working memory is what impairs the working memory of a child with ADHD.

Some studies have already shown that children with ADHD vary widely in how fast they can complete tasks that demand use of working memory compared to children who develop normally. Others have suggested that children with ADHD might have slower response times.

For this study the researchers used more finely tuned statistical tools to find out if ADHD reaction times are faster, slower, or whether the underlying process is less straightforward.

They found that children with ADHD were mostly responding at the same rate as their normally developing counterparts, but showed a higher rate of very slow responses.

For the study the researchers gave 25 children with ADHD and 24 controls (children without

ADHD who were developing normally) a series of computer based mental arithmetic exercises. For instance, they were asked to add a number on one screen to a number on another screen without using pencil and paper, and they had to decide whether a given sum was right or not.

The children did the exercises over a number of sessions, at different speeds and different levels of difficulty.

Lead author Wendy Buzy, who was a graduate student at the time said:

"We found that the children with ADHD were much less consistent in their response times."

She said that while the ADHD children's responses were just as accurate as the non-ADHD children, more of their responses took longer.

The study used a different approach in the analysis. Previous studies compared the range of response times and average response times for children with ADHD and controls; but in this study the researchers used more sophisticated tools so they could compare variation in reaction times within and between individuals, as well as within and between groups.

Schweitzer said they also found that:

"Higher levels of hyperactivity and restlessness or impulsivity correlated with slower reaction times."

This study has triggered another member of Schweitzer's team, postdoctoral fellow Catherine Fassbender, to start looking at fMRI brain images of ADHD children to examine variability in response time during a working memory task.

Schweitzer also wants to investigate treatments that might help to reduce the variability in use of working memory.

"Improving consistency in how children with ADHD respond to the environment should help them generalize what they learn in clinical interventions improving their skills across situations," she explained.

<http://www.medicalnewstoday.com/articles/143936.php>



## Lead Exposure May Contribute to ADHD



TUESDAY, Feb. 2 (HealthDay News) -- Lead may play a role in the development of attention-deficit hyperactivity disorder (ADHD), new research suggests.

Genes are believed to account for as much as 70 percent of ADHD in children. Researchers trying to determine the cause of the other 30 percent of cases consider lead a prime suspect among possible environmental causes, according to the American Association of Psychological Science.

Lead, a neurotoxin, is present in trace amounts in such things as soil, drinking water, children's costume jewelry and imported candies. Nearly all children in the United States have measurable levels of lead in their bodies, the association reports.

In one of two recent studies examining the possible link between lead and ADHD, the researchers found that children with ADHD had slightly higher levels of lead in their blood than did children without ADHD. The second study showed an association between elevated levels of lead in children's blood and parent/teacher ratings of ADHD symptoms, including both hyperactivity and attention problems.

In both studies, the link between lead and ADHD was independent of the children's IQ, family income, race or whether their mothers had smoked during pregnancy.

The findings strongly suggest that lead may be a cause of ADHD, according to Joel Nigg, a psychological scientist at Oregon Health & Science University. He said that lead might disrupt brain activity in a way that leads to hyperactivity and attention problems.

The studies are published in the February issue of the journal *Current Directions in Psychological Science*.

<http://www.businessweek.com/lifestyle/content/healthday/635563.html>

## Meditation seen promising as ADHD therapy

Reuters



A woman participates in a yoga class with her 2-year-old son. The practice of transcendental meditation may help children with attention-deficit hyperactivity disorder manage their symptoms, research suggests.

Photograph by: Paula Bronstein/Getty Images, Getty Images

**NEW YORK (Reuters Health)** - The practice of transcendental meditation may help children with attention-deficit hyperactivity disorder manage their symptoms, research suggests.

In a pilot study, researchers found that lessons in transcendental meditation, or TM, appeared to calm the anxiety of children with ADHD, and improve their behavior and ability to think and concentrate.

TM is considered to be one of the simplest meditation techniques. Practitioners sit comfortably for 10 to 15 minutes with their eyes closed, silently repeating a mantra -- a sound, word or phrase -- to calm the mind and body. Some researchers believe that meditation affects the nervous system in a way that can alter a range of bodily functions, including breathing, blood vessel dilation and stress-hormone regulation.

The current findings indicate that children with ADHD can not only learn the TM technique but also benefit from it, the researchers report in the online journal *Current Issues in Education*.

"The effect was much greater than we expected," lead researcher Sarina J. Grosswald, a cognitive learning specialist in Arlington, Virginia, said in a written statement.

"The children also showed improvements in attention, working memory, organization, and behavior regulation," she added.

The study included 10 children between the ages of 11 and 14 who were attending a school for students with language-related learning disabilities. All had been diagnosed with ADHD and, though most were taking medication, were having problems at school and home.

The students were taught the TM technique and then practiced it at school twice a day, for 10 minutes at a time.

After three months, Grosswald and her colleagues found, the students reported lower stress and anxiety levels, while their ADHD symptoms also improved, based on questionnaires given to teachers and parents.

"Teachers reported they were able to teach more," Grosswald said, "and students were able to learn more because they were less stressed and anxious."

Larger studies, she and her colleagues write, are now needed to see whether TM can be used as an ADHD therapy, either in addition to standard treatment or by itself.

"TM doesn't require concentration, controlling the mind or disciplined focus," Grosswald noted. "The fact that these children are able to do TM, and do it easily shows us that this technique may be particularly well suited for children with ADHD."

SOURCE: Current Issues in Education, December 2008.

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<http://www.canada.com/health/seniors/Meditation+seen+promising+ADHD+therapy/1144131/story.html?id=1144131>

# The Gazette

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## Micronutrients: Revolution or false hope?

By ALBERT NERENBERG , Special to The Gazette February 27, 2010



Micronutrients sound like something out of a Hollywood script: A “cure” for terrible diseases discovered by the families of those suffering with the illnesses, not medical professionals.

Photograph by: Greg Pender, Star Phoenix File Photo

MONTREAL – Tony Stephan’s life was coming unglued.

In 1994, the 40-year-old engineer from Cardston, Alta., thought his 210-pound teenage son might kill him.

Joseph, 15, had been diagnosed with bipolar disorder and although medicated had violent mood swings. Once a gentle giant of a kid, he would explode into violent rages.

“He assaulted my wife. We were all afraid for our lives,” Stephan said in an interview. “My son was insane.”

But that was just the half of it. Severe bipolar disorder runs in the family.

Stephan’s wife, Deborah, and daughter Autumn Stringam, 22, had also been diagnosed with the condition. Autumn hallucinated and saw “demons” coming out of a hole in her chest. Then one day, Deborah committed suicide, asphyxiating herself in the family van in a provincial park.

Stephan was losing it. He had just buried his wife. It seemed to him his son and daughter were next. What he did to apparently save his kids – taking them off their medications and giving

them micronutrients (concentrated daily doses of a vitamin and mineral formula) – is now being heralded as either a scam or a revolution.

Stephan is not a doctor or a scientist, but a new wave of international research suggests this “regular guy” from rural Alberta could be part of a significant breakthrough in the way we see and treat mental illnesses. Stephan claims mental illnesses may not be life-long conditions but potentially treatable nutritional issues. But Health Canada, some doctors and some mental health experts have disagreed, warning against Stephan’s micronutrient approach.

Micronutrients sound like something out of a Hollywood script: A “cure” for terrible diseases discovered by the families of those suffering with the illnesses, not medical professionals. That remarkable claim is getting support from preliminary studies at universities in Canada, the U.S. and New Zealand.

Taking risks with medication is naturally dangerous and worthy of extreme caution and this story does not suggest people with mental illnesses stop taking prescribed medication. But a new approach may be on the horizon and with the announcement of a major clinical trial of treating Attention Deficit Hyperactivity Disorder with micronutrients, it’s time to take a look at the bigger picture.

Studies at three major universities have now concluded the micronutrient approach to mood disorders merits serious examination. Results of preliminary research into treating people suffering from ADHD with the Canadian treatment approach, reported in January at the University of Canterbury, caused a stir in New Zealand.

“People ... made ‘remarkable’ improvements by taking a daily dose of nutritional supplements rather than conventional medicines, a trial has found,” an Auckland newspaper reported.

Now, a double-blind, placebo-controlled study – the accepted standard for testing new treatments – is taking place in New Zealand, testing Stephan’s treatment on people with ADHD. (In such a clinical trial, neither the patients nor the researchers know who is getting a placebo and who is getting the treatment, so the results aren’t tainted by expectations.)

“The normalization of the mentally ill via nutrient supplementation would be the most significant breakthrough in the field of mental illness since the beginning of time,” states Bonnie Kaplan – a professor in the faculty of medicine at University of Calgary who has conducted research into Stephan’s micronutrient treatment – in conference materials for Micronutrients for Mental Health, held in San Francisco in December.

Kaplan co-authored a study with New York University economics Professor Dermot Gately, published in November 2009, examining 358 adults with bipolar disorder who were using Stephan’s approach. The study showed that symptoms of bipolar disorder were “45-per-cent lower after six months” of taking micronutrients, according to their report in the journal *Clinical Medicine: Psychiatry*. This involved daily doses of vitamins and minerals that could be sourced from almost any drugstore.

Although this treatment originated in Canada, other countries might be in the process of legitimizing it. But at home, Stephan has been shut down and called a fraud, a charlatan, and even accused of exploiting the horrors of his family ordeal for profit, he says.

“There was a lot of excitement about this stuff when it first came out,” said Bill Ashdown, vice-president and founder of the Mood Disorders Society of Canada, an advocacy group. But Ashdown notes sufferers of mental illnesses and their families have frequently been let down by “exciting new treatments.” Could this be different?

After looking at copies, sent to him by The Gazette, of some University of Calgary and Canterbury studies done over the past decade that show Stephan’s micronutrient approach has promise, Ashdown said he liked what he saw so far.

“The more I looked at the studies, the more encouraged I am. It’s obvious this is a whole area that needs further study.”

Stephan claims that today 60,000 people worldwide are using his treatment and “80 per cent have lives that have returned to some kind of normalcy.”

Mental illnesses will be the No. 2 cause of death and disability by 2020, according to the World Health Organization. Along with many common mental illnesses, bipolar disorder, also known as manic-depressive disorder, is becoming more common. One in every five Canadians will have a mental health problem at some point in their lives and about one per cent will experience bipolar disorder, according to the Canadian Mental Health Association.

Although the condition varies greatly, bipolar disorder is generally accompanied by dramatic mood swings often from depressive to manic states, which can come with psychosis, delusions and hallucinations. It is tied to elevated rates of depression and suicide. There is no known cure for bipolar disorder but many have their condition stabilized through medication, traditionally pharmaceutical variations on the mineral lithium.

“My son was on 900 milligrams of lithium a day and was absolutely out of control,” said Stephan. His daughter, who was on a mix of pharmaceutical drugs, believed her husband was plotting to murder her.

Fearing his children were headed for oblivion, Stephan says he found something that saved his kids. What he discovered was outside medical practice, and at first glance sounds totally loony.

While discussing new carpeting for his church basement, Stephan told his desperate story to David Hardy, an animal feed specialist. Hardy observed Joseph’s bipolar condition sounded a bit like ear-and-tail-biting syndrome in pigs. Yes, pigs. Pigs often behave badly, something that can be regulated by changing their diets. Using Hardy’s background in feed supplements, the two would then create a human version of a pig nutritional regimen, which they administered to Stephan’s children while weaning them off their medication, which had not been effective. The supplement was heavy in micronutrients.

As opposed to major nutrients like proteins and carbohydrates, micronutrients are the tiny trace amounts of minerals and vitamins that some believe are essential to health and balanced mental function. They include selenium, zinc, chromium, manganese, magnesium and molybdenum among many others. The theory is that people who lack certain micronutrients lose healthy brain function, and may develop mental and mood disorders. Some people simply need them more than others.

Within about 30 days on a daily high-dosage micronutrient supplement, Joseph's symptoms were gone, Stephan says. Autumn had been in a psychotic state, convinced there was a portal to hell in her chest. After four days of treatment, she says, her hallucinations subsided. Autumn would later write a book about her ordeal, *A Promise of Hope*, published by HarperCollins in 2007, where she describes waking up after taking the supplements for several days: "I push my arms under the blankets to feel my chest. There is no hole. Just me, in bed with a mid-morning sun on my face."

"New treatments come along all the time," said Professor Hani Iskandar, coordinator of undergraduate medical education in the department of psychiatry at McGill University and a Douglas Hospital clinician and researcher in mood disorders. "It's important to be very cautious."

New treatments do follow a clear and careful route in the medical world, and Iskandar said the micronutrient approach has yet to gain appropriate credibility.

But in the U.S., there are now several hundred doctors prescribing micronutrients, says psychiatrist Charles Popper, a clinical associate at McLean Hospital, a Harvard University psychiatric teaching hospital.

Dr. Scott Shannon treats adults and children with bipolar disorder in Fort Collins, Colo., and is an associate professor in psychiatry at the University of Colorado. He says he now regularly prescribes Stephan's micronutrients to those patients: "It is so much safer and effective, and it's really a shame that it's not more well known."

Shannon says unlike pharmaceutical medications, which often cause "weight gain and cognitive clouding, the only side effects we get is some soft stools because magnesium, one of the ingredients, is a laxative."

Shannon said he personally has treated more than 150 patients with mood disorders with the micronutrient approach.

"I would say 70 to 80 per cent respond robustly," he said. "After two years they often don't need me anymore."

After Stephan's kids returned to "normal," Stephan and Hardy decided to seek scientific validation for their discovery.

They began by approaching scientists, contacting Kaplan, then director of behavioural research at Alberta Children's Hospital. Kaplan would initially tell a reporter: "I told them to take their snake oil somewhere else."

But in 1996, Kaplan, on the recommendation of a scientist friend, met with the two men, and they convinced her it at least merited investigation. She tried the micronutrient treatment on people who had not responded well to conventional medication for bipolar disorder, two young boys with mood disorders and explosive tempers. After taking the supplement, Kaplan said, their rages diminished.

Kaplan was intrigued, and in 2000, began a small open-label clinical trial of 11 bipolar patients who had also not responded to standard medications. After six months, all 11 patients were both less depressed and less manic according to Kaplan's study, which was published in the *Journal of Child and Adolescent Child Psychopharmacology*.

Kaplan would tell Discovery Channel: "In a word, they got better. It somehow corrects an imbalance that these people are predisposed to have."

Stephan and Hardy also met with psychiatrist Popper. After testing the Canadians' micronutrient treatment on 22 patients suffering from bipolar disorder, Popper wrote in the December 2001 *Journal of Clinical Psychiatry*: "What if some patients could be treated with inexpensive vitamins and minerals rather than expensive patented pharmaceuticals?"

Of his 22 patients, "19 showed what I believe to be a positive response. (2 mild, 7 moderate, 10 marked improvement)," Popper wrote.

"I'm in full agreement with being skeptical about new wild-eyed claims," he said in a recent interview. "But it's clear that this merits research."

These results are still considered "anecdotal" by medical research standards, which usually require a major double-blind, placebo-controlled study like the one now under way in New Zealand.

Stephan and Hardy, who happen to be Mormon, in 1996 co-founded Truehope, a religious-sounding Alberta nutritional supplement company, to sell their micronutrient treatment for bipolar disorder, EMPowerplus, which they manufacture in Los Angeles. It's a mixture of vitamins and minerals that sells for about \$150 for a month's daily supply. The mixture contained relatively high doses of 34 vitamins and minerals including B vitamins, calcium, iron, magnesium, copper and potassium. Truehope quickly became controversial because of its advice to clients taking EMPowerplus to go off their regular medication, due to possible side effects of overmedication.

On its website, Truehope claims its products not only help resolve bipolar disorder but also migraines, schizophrenia, depression and other conditions.

“Yes. It got us into a lot of trouble,” with Health Canada, which requires testing of products for which medical claims have been made, said Stephan, who says he believes that most mood disorders may have a nutritional basis. “We had people coming to us with depression who wanted to try our product. When it seemed to work, it was hard to say ‘no.’ ”

Truehope does suggest that people go off their meds, though with the help of their doctors. The obvious danger of the micronutrient approach occurs when people go off their medication because of it.

“We try to work with people’s doctors when we can. I do believe in science,” he said. “But I believe in helping people, too. The mindset about mental illnesses is there’s no cure for them and there never will be. I obviously disagree.”

Why would a nutritional supplement, based on one given to pigs, work on human bipolar disorder when medical science can seemingly only manage it?

Generally speaking, common mental illnesses are seen as life-long conditions. They cannot be cured, but can be treated and sometimes moderated by modern medicine. Nobel Prize winning scientist Linus Pauling had another idea in the late 1960s. He speculated that some people have a stronger genetic-based need for vitamins and minerals than others. He suggested some mental illnesses could simply be results of failing to meet these requirements. Scientists have observed that nutritional deficiency in otherwise healthy people can quickly produce mental issues. Almost anyone will experience mood swings when very hungry.

Back in Calgary in 2001, Kaplan was ready to go to the next stage, and launch a major double-blind study. But in March 2001, Health Canada lowered the boom.

“We started the study,” said Kaplan. “And then I found out the formula had been stopped at the border by Health Canada. Health Canada shut down our trial. They confiscated the formula, raided Truehope’s office, and ordered everyone to go off the formula,” Kaplan said in an interview.

Kaplan was floored. She said she had assumed at the very least that checking the effectiveness of the micronutrient approach was a reasonable subject of study.

For the thousands of people already using the product, there was panic, says Stephan, as fear spread that users would be cut off.

Tony Rider, a Toronto real-estate agent and bipolar sufferer said in an interview he was so desperate for the supplements he would smuggle them across the border.

“I used to drive back to Canada with it under the seat of my car,” said Rider, who credits micronutrients for his current stable mental health.

A June 2003 public advisory on Health Canada’s website states: “Health Canada is advising consumers not to use EMPowerplus, also known as EM Power+ and EM Power. It is a drug. ...

“The main concern with Empowerplus is that the product is being promoted for the treatment of serious psychiatric disorders without having undergone the rigorous testing necessary for all drug products.”

Acting, it says, out of concern for the well-being of patients advised to go off their medications, Health Canada alerted the RCMP, which in July 2003 raided the Truehope office in Raymond, Alta. Truehope was charged with violations of the Food and Drug Act, for selling a drug without government approval. In July 2006, a provincial court judge dismissed the charges, ruling the firm had no reasonable legal alternative to selling its EMPowerplus without regulatory approval, accepting the defence’s arguments that clients may have become ill or even died without it.

“Why don’t they (Stephan and Hardy) just go away?” Dr. Terry Polevoy said in an interview. Polevoy is a pediatrician who operates the Acne Care Clinic in Kitchener and a fervent opponent of Truehope. He runs one of Canada’s main anti-quackery websites, Healthwatcher.net, and is incensed at what he sees as Truehope’s non-medical approach to treating serious illnesses.

Polevoy, who claims Truehope is simply a scam preying on the desperation of the mentally ill, co-wrote an online exposé book, titled *Pig Pills, Inc., The Anatomy of an Academic and Alternative Health Fraud* (2003). Polevoy says Stephan is not a doctor, but he and his staff act like medical professionals dispensing “cures” for mental illnesses for profit.

“It’s dangerous. Because there’s no proof and these people aren’t scientists.”

Stephan counters that he expected opposition but he was surprised how “ballistic” it was. Not only was he targeted personally and professionally by Polevoy, but anyone who took up research in the micronutrient area was targeted, too.

The two researchers who originally opened the door to micronutrient research regarding mental illness were both subjected to what they characterize as harassment.

Polevoy wrote letters to deans and research ethics committees at the University of Calgary attacking Kaplan’s research and conducting Access to Information requests for all her documentation. Similar letter campaigns sent to Harvard targeted Charles Popper’s work. As a result, both researchers spent months defending their work to academic bodies, they said.

“We were always exonerated,” said Kaplan. “There’s never been a charge upheld against any of us.”

Popper characterized the campaign against micronutrient research as “anti-science.”

“Their names were being associated with sales of the product (EMPowerplus),” said Polevoy, explaining why he targeted Kaplan and Popper.

The *Pig Pills* author was stunned to hear that New Zealand was now conducting clinical trials with EMPowerplus. “I don’t believe it,” he said, adding he doubted micronutrients would ever

gain legitimacy. “No big drug company is going to study this because there’s no money in it – it can’t be patented.”

Kaplan has recently moved on to an Alberta government-supported

\$ 5-million study of nutrition and pregnancy, where she leads a 16-member academic team. She said she felt the crux of the furor over EMPowerplus was that the treatment came from regular people, Stephan and Hardy, not the medical community.

“It infuriates their critics that these people aren’t doctors and they’re helping people,” she said.

David Thomas, a media-relations officer for Health Canada, said although Health Canada allows a version of Truehope’s product to be sold in Canada, it still recommends against the use of EMPowerplus.

“The safety and efficacy of EMPowerplus has not been shown,” he said.

Truehope claims it’s caught in a Catch 22. Critics attack the company, saying it doesn’t have appropriate research backing its claims, but the same critics have campaigned against that very research even taking place, Stephan says.

Marvin Ross, a science writer and author of *Schizophrenia: Medicine's Mystery – Society's Shame* (2008), co-wrote *Pig Pills*. He says he and Polevoy got interested in the story when they attended an information session staffed by Truehope in Hamilton.

“They were encouraging people to go off their meds,” said Ross.

In 2007, Health Canada issued another warning about EMPowerplus: “Health Canada has received nine case reports of serious adverse reactions associated with the use of EMPowerplus. ... The worsening of these symptoms could be related to taking the product and discontinuing prescription medications.”

Ross says the numbers of former bipolar sufferers who swear by EMPowerplus does baffle him.

“I don’t explain it because I can’t,” he says. Ross did speculate that by its nature bipolar is a condition that “waxes and wanes.” People who experience a natural improvement in their condition might attribute it to EMPowerplus while it may be coincidence.

“Take vitamins if you like,” he said. “But don’t go off your meds. Yes, there are anecdotes about people who have gotten well. But anecdotes don’t make science.”

Research has taken root at Ohio State University, as well as at New Zealand’s University of Canterbury.

Professor Mary Fristad at Ohio State completed a study in 2009 on Truehope’s EMPowerplus, which showed positive results.

“This report adds to accumulating preliminary evidence that further basic science and clinical studies of micronutrient supplements are warranted,” says her study, published in the *Journal of Child and Adolescent Psychopharmacology*.

Fristad is now working on finding funding for a full clinical trial of Truehope micronutrients as treatment for bipolar disorder.

Child psychiatrist Arnold, also at Ohio State, says Canada has missed the boat on this one. “There’s been some intemperate claims about nutritional supplements in the past, which may have caused a backlash,” he said. “But a lot of good people are on top of this. I think Canada missed the opportunity to be the leader in the area and now other countries are taking over.”

The formal clinical double-blind, placebo-controlled study, treating ADHD with the micronutrient approach, is now in progress at the University of Canterbury under Professor Julia Rucklidge, a former graduate student of Bonnie Kaplan. Rucklidge says she’s been inundated with over 500 requests from people who want to be on the study, so they can access the treatment.

“It’s been quite amazing,” she said.

As a Canadian, Rucklidge says, she was baffled by what she called Canada’s “crushing” of micronutrient research.

“To try and shut down a natural line of investigation doesn’t make sense,” she said in an interview. “Right or wrong, it’s in the best interest of everyone to find out.”

<http://www.montrealgazette.com/health/Revolution+false+hope/2618521/story.html>

## **Motivation could be ADHD related**

By Nicola Conville

September 25, 2009 03:57pm

**PROBLEMS with concentrating that affect people with attention-deficit hyperactivity disorder (ADHD) could be related to motivation, according to a groundbreaking new US study.**

Lead researcher Dr Nora D. Volkow says the study “found a disruption in the brain’s reward/motivation pathway” in people with ADHD, which may in turn lead to hyperactivity and inattention. This disruption is associated with a lack of the brain chemical, dopamine.

“ADHD is traditionally a disease where people think the disruption is in attention and activity,” Dr Volkow explains. “So the whole focus on research and treatment has been on attention.”

Recent studies have found that children with ADHD don’t respond to rewards in the same way as children without ADHD, Dr Volkow adds.

“My strategy [in dealing with children with ADHD] would be rather than exercising the attention network, let me give an intervention that will make the task more engaging,” she says.

Dr Volkow also says that the study results mean current use of medication such as Ritalin is justified because it is compensating for poor dopamine levels in children with ADHD.

### **New camera tracks pet’s movements**

Ever wondered what kind of mischief your moggie gets up to on his midnight rambles? Or where your faithful doggy heads off to on his neighbourhood walks?

All could be revealed with a new “petcam” which you can simply attach to your furry friend’s collar.

The Pet’s Eye View Camera, designed in the US, takes up to 40 high-res photographs with three timer settings of one minute, five minutes or 15 minutes.

The camera is light and durable and the water-resistant housing keeps it dry and secure while your pet roams the world, acting as an unwitting photographer.

The Pet's Eye View Camera is available in Australia and can be purchased online from [www.coolthings.com.au](http://www.coolthings.com.au) for \$99.95.

Drinkers exercise more

People who drink alcohol exercise more frequently than teetotalers, according to a new US study.

Researchers from the University of Miami found that from a fitness perspective, drinking was associated with a 10 per cent increase in the likelihood of engaging in vigorous physical activity.

That's not to say we should break open the bubbly just yet; lead author Professor Michael French cautions against excessive drinking, saying the negative effects of heavy drinking may outweigh the benefits of more exercise.

"Light to moderate drinking may be health-enhancing for some people. If responsible drinkers are using exercise to partially counteract the kilojoule intake from alcohol, that is not such a bad thing," he says.

Did you know? Broccoli may prevent heart attacks and strokes.

New research shows a chemical found naturally in broccoli, sulforaphane, boosts the body's defence system to keep arteries unclogged.

<http://www.news.com.au/couriermail/story/0,23739,26123737-5006012,00.html>



## **Napping, Hyperactivity, Depression and Anxiety are linked**

June 8, 2009

Submitted by [harminka](#) on Mon, 2009-06-08 07:43

Napping may have a significant influence on young children's daytime functioning, according to a research abstract that will be presented on Monday, June 8 at SLEEP 2009, the 23rd Annual Meeting of the Associated Professional Sleep Societies.

Results indicate that children between the ages of 4 and 5 who did not take daytime naps were reported by their parents to exhibit higher levels of hyperactivity, anxiety and depression than children who continued to nap at this age.

According to lead author Brian Crosby, PhD, postdoctoral fellow of psychology at Pennsylvania State University, previous studies have shown that poor or inadequate sleep is linked with symptoms of hyperactivity, anxiety and depression; researchers involved in this study were happy to demonstrate the potential importance of napping for optimal daytime functioning in young children, as napping is often overlooked in favor of nighttime or total sleep.

"There is a lot of individual variability in when children are ready to give up naps. I would encourage parents to include a quiet 'rest' time in their daily schedule that would allow children to nap if necessary."

The study included data from 62 children between the ages of 4 and 5 who were classified as either napping (77 percent) or non-napping (23 percent) based on actigraphy data. Napping children napped an average of 3.4 days per week. Of the sample, 55 percent were white-non Hispanic and 53 percent were male. Caretakers reported their child's typical weekday and weekend bedtime/rise time, napping patterns, family demographics, and completed a behavioral assessment of the child. Actigraphy data for each child was collected continuously for seven to 14 days.

Crosby hopes that findings of this study will encourage caregivers and other researchers to look at the ways napping impacts daytime functioning in children, as an optimal age to stop napping has not yet been determined.

By American Academy of Sleep Medicine

<http://www.huliq.com/11/81930/napping-hyperactivity-depression-and-anxiety-are-linked>



## Neural Processing Differences In ADHD In Individuals With And Without Prenatal Alcohol Exposure

Article Date: 28 Jan 2010 - 4:00 PST

The adverse effects of prenatal alcohol exposure on behavioral, cognitive, and social development can lead to a range of symptoms referred to as fetal alcohol spectrum disorder (FASD). Attention and cognition problems seen in individuals with a history of prenatal alcohol exposure often resemble those linked to attention deficit hyperactivity disorder ([ADHD](#)). An assessment of these disorders has found that while children with FASD may meet the behavioral criteria for ADHD, their attention difficulties differ in subtle but important respects.

Results will be published in the April 2010 issue of *Alcoholism: Clinical & Experimental Research* and are currently available at Early View.

"ADHD is clinically diagnosed primarily on the basis of observations by the parent, teacher, and clinician regarding the degree to which a child exhibits specific behavioral symptoms, such as difficulty sustaining attention to and completing tasks or play activities, failure to listen when spoken to directly, impulsivity, talking out of turn, or difficulty sitting still," explained Joseph Jacobson, professor at Wayne State University School of Medicine and the study's corresponding author. "A large proportion of children with a history of prenatal alcohol exposure exhibits these behavioral characteristics and, therefore, may meet the criteria for a diagnosis of ADHD."

Jacobson and his colleagues examined event-related potentials (ERPs), which reflect changes in the brain's electrical activity in response to a particular stimulus or condition, in 102 (54 women, 48 men) 19-year-olds. All of the young adults performed a Go/No-go task, which requires the participant to attend and respond selectively to non-target stimuli (Go) and inhibit responses to a target stimulus (No-go).

Jacobson explained how the Go/No-go task was used in this study. "The participant is instructed to press a button whenever a letter appears on the screen except when the letter X appears," he said. "The participant gets into the routine of pressing the button as the letters appear on the screen. Once the rhythm of button pressing is established, individuals with ADHD find it more difficult to inhibit or hold back their impulse to press the button when the X appears and make more errors on the task regardless of whether or not they were exposed prenatally to alcohol."

While participants with childhood ADHD, regardless of their prenatal alcohol exposure, were less accurate at inhibiting responses, only the ADHD group without prenatal alcohol exposure showed a unique ERP brain wave pattern, which may reflect a more

effortful strategy related to inhibitory control.

"This difference was seen in the P3 ERP brain wave component, which has been found in other studies to reflect the mental effort or heightened attention exerted in performing a task; thus, the more difficult or cognitively challenging the task, the larger the P3 brain wave," said Jacobson. "The typical response, which was seen both in the young adults with prenatal alcohol exposure and in the normal controls, is a larger P3 brain wave only in the more challenging No-go condition. We found that the young adults in the idiopathic ADHD group (i.e., those without prenatal alcohol exposure) showed a larger P3 wave during both types of trials - those where they had to inhibit the button press and those where they did not have to inhibit, which suggests that they found the whole task more difficult and were unable to develop the type of automatic strategy for inhibiting responses that would be expected at this age."

Jacobson added that this study is the first to use ERPs to compare neurophysiological function during a cognitive task with these two groups.

"The data support the notion that information processing difficulties in children with prenatal alcohol exposure who exhibit ADHD symptoms may differ from those seen in children with idiopathic ADHD, even though behaviorally both groups may exhibit inattention and hyperactivity," he said. "The ERP data suggest that different neurophysiological processes may be responsible for the attention problems seen in these two groups, which may explain why psychostimulant medication, which is often effective in treating idiopathic ADHD, is reported to be less effective in children with ADHD behavioral symptoms who were prenatally exposed to alcohol."

In summary, he said, this study provides improved understanding of the differences in neurophysiological processing responsible for the behavioral symptoms in these two different groups, which may in turn, provide important clues regarding new treatments that may be more effective for treating ADHD symptoms in children with prenatal alcohol exposure.

Source: Joseph Jacobson, Ph.D.  
Wayne State University School of Medicine

Alcoholism: Clinical & Experimental Research

<http://www.medicalnewstoday.com/articles/177421.php>



## **New Research Sheds Light on Chiropractic, Speech & Learning Disorders**

Recent research reporting on improvement in a 4 year old boy undergoing chiropractic care reveals that chiropractic may play an important role in managing children with speech and learning disorders.

Atlanta, GA, November 22, 2009 --(PR.com)-- The research, reported in the Journal of Pediatric, Maternal & Family Health – Chiropractic, includes a review of the literature supporting the role of chiropractic in children suffering from a number of disorders that share their origin with learning and speech delay.

“Research is revealing that there is a relationship between abnormalities in the spine, the nervous system and brain” stated Dr. Ben Lerner, lead author of the paper. “Basic science research shows that the proper development and function of the brain relies on proper structure and movement of the spine from an early age.”

Research has shown not only that the developing brain relies on normal structural integrity and joint movement, but that complex neurochemical communication and pathways involved in helping humans to “feel good” are tied into spinal biomechanics and their related neurological pathways.

“It makes perfect sense when you think about it” stated Dr. Sheri Lerner, a co-author on the paper. “We see this shocking increase in the diagnosis of things like ADHD, learning and other behavioral disorders at the same time that we see a huge increase of sedentary behavior in our children.”

According to Dr. Matthew McCoy, a chiropractor, public health researcher and editor of the journal that published the study, “Researchers believe that the increase in the diagnosis of learning disorders, ADHD, pervasive developmental disorder, Tourette’s Syndrome, obsessive compulsive disorder and other neurodevelopmental disorders, have their root in a “perfect storm” of abnormal spinal development coupled with cultural changes.

These changes include an increase in television watching, computer use, computer games and lack of exercise causing an increase in obesity and diabetes in children. “Together with the abnormal spinal development these habits are simply stunting the development of our children’s brains” stated McCoy.

In the case reported on in the article the initial application of chiropractic was followed by nutritional advice which included eliminating sugar and grains from the patient’s diet. Correction of the neurological interference was the first priority however.

According to Lerner “Children’s nervous systems need the constant stimulation of movement in order to develop and function properly. Abnormal position or movement of the spinal vertebra can develop and this can lead to nerve interference. It is this interference, called vertebral subluxations, that chiropractors correct.”

The child reported on in the study suffered from a number of health challenges including speech so impaired that others could not understand him. Frustration and anger ensued when the child started school and still did not speak. Efforts at speech therapy left the parents wanting for other answers and so they sought chiropractic care. Immediately following the first chiropractic adjustment the patient began speaking and putting together full sentences that were coherent and understandable. He was also able to recognize his written name for the first time following the first adjustment. He has since started to color with crayons and he can now understand and follow verbal directions. Prior to care he was emotionless but he now smiles and cries appropriately. The authors of the study call for more research on the role of chiropractic care in these types of disorders.

<http://www.pr.com/press-release/194809>



## **New Study Links DHA Type of Omega-3 to Better Nervous-System Function**

ScienceDaily (Dec. 16, 2009) — The omega-3 essential fatty acids commonly found in fatty fish and algae help animals avoid sensory overload, according to research published by the American Psychological Association. The finding connects low omega-3s to the information-processing problems found in people with schizophrenia; bipolar, obsessive-compulsive, and attention-deficit hyperactivity disorders; Huntington's disease; and other afflictions of the nervous system.

The study, reported in the journal *Behavioral Neuroscience*, provides more evidence that fish is brain food. The key finding was that two omega-3 fatty acids -- docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) -- appear to be most useful in the nervous system, maybe by maintaining nerve-cell membranes.

"It is an uphill battle now to reverse the message that 'fats are bad,' and to increase omega-3 fats in our diet," said Norman Salem Jr., PhD, who led this study at the Laboratory of Membrane Biochemistry and Biophysics at the National Institute on Alcohol Abuse and Alcoholism.

The body cannot make these essential nutrients from scratch. It gets them by metabolizing their precursor,  $\alpha$ -linolenic acid (LNA), or from foods or dietary supplements with DHA and EPA in a readily usable form. "Humans can convert less than one percent of the precursor into DHA, making DHA an essential nutrient in the human diet," added Irina Fedorova, PhD, one of the paper's co-authors. EPA is already known for its anti-inflammatory and cardiovascular effects, but DHA makes up more than 90 percent of the omega-3s in the brain (which has no EPA), retina and nervous system in general.

In the study, the researchers fed four different diets with no or varying types and amounts of omega-3s to four groups of pregnant mice and then their offspring. They measured how the offspring, once grown, responded to a classic test of nervous-system function in which healthy animals are exposed to a sudden loud noise. Normally, animals flinch. However, when they hear a softer tone in advance, they flinch much less. It appears that normal nervous systems use that gentle warning to prepare instinctively for future stimuli, an adaptive process called sensorimotor gating.

Only the mice raised on DHA and EPA, but not their precursor of LNA, showed normal, adaptive sensorimotor gating by responding in a significantly calmer way to the loud noises that followed soft tones. The mice in all other groups, when warned, were startled nearly as much by the loud sound. When DHA was deficient, the nervous system most obviously did not downshift. That resulted in an abnormal state that could leave animals perpetually startled and easily overwhelmed by sensory stimuli.

The authors concluded that not enough DHA in the diet may reduce the ability to handle sensory input. "It only takes a small decrement in brain DHA to produce losses in brain function," said Salem.

In humans, weak sensorimotor gating is a hallmark of many nervous-system disorders such as schizophrenia or ADHD. Given mounting evidence of the role omega-3s play in the nervous system, there is intense interest in their therapeutic potential, perhaps as a supplement to medicines. For example, people with schizophrenia have lower levels of essential fatty acids, possibly from a genetic variation that results in poor metabolism of these nutrients.

More broadly, the typical American diet is much lower in all types of omega-3 than in omega-6 essential fatty acids, according to Salem. High intake of omega-6, or linoleic acid, reduces the body's ability to incorporate omega-3s. As a result, "we have the double whammy of low omega-3 intake and high omega-6 intake," he said.

<http://www.sciencedaily.com/releases/2009/12/091216130718.htm>

# SMARTALEC UNIVERSITY

## Nutrition Can Be the Cause of ADD/ADHD

By Jimmy Brownen, *June 10th, 2009*



<http://www.flickr.com/photos/stc4blues/2924711729/> The connection between ADD/ADHD and nutrition is accepted as fact. Ever since the late 1970s, suspicions on whether nutrition could be related to ADD/ADHD has been explored by researchers. Now that the fact has been established, this important link continues to be misunderstood by nutritionist, medical professional as well as individuals diagnosed with ADD/ADHD.

### The Studies

There are not just one or two studies that shows connection between nutrition and ADD/ADHD but thousands. Most are done by highly reputable learning institutions as well as medical facilities. Almost all experts in these studies agree on the fact that there is certainly a definitive connection between nutrition and ADD/ADHD and findings have also been published. Read on to find out more about a few of these studies.

The remarkable role of nutrition in learning and behavior. This study, authored by Jennifer Dani, Courtney Burrill, and Barbara Demmig-Adams found that:

Among the findings of this study which focuses on attention deficit hyperactivity disorder are the important roles nutrients such as protein, iron and iodine plays in a child's learning capabilities. Consumption of breakfast too plays a significant role. More recent studies has confirmed this as well as revealing that other micronutrients such as essential fatty acids, minerals, and vitamins too can help prevent learning or other behavioral disorders.

Chris D. Meletis and Jason Barker had authored a study called *Mental Health: Not All in the Mind Really a Matter of Cellular Biochemistry*.

A study done by D.W. Schab. Schab and his colleagues have concluded that children's behavior improved when AFC's was no longer in their diet. This study entitled *Artificial Food Coloring Promotes Hyperactivity* was published in *The Journal of Developmental & Behavioral Pediatrics*.

A study by C M Carter, M Urbanowicz, R Hemsley, L Mantilla, S Strobel, P J Graham, and E Taylor called Effects of a few food diet in attention deficit disorder found that a child's diet are important factors that can lead to behavior disorders. In this study, 76% of children had improved conditions after undergoing elimination diet.

More studies have further justified the huge role foods and additives play in forming attention deficit hyperactive disorder in children. M. Boris and F.S. Mandel, in their study found that a beneficial effect of eliminating reactive foods and artificial colors in children with ADHD. Dietary factors may play a significant role in the etiology of the majority of children with ADHD.

### The Results

these are just some of the studies from many that may have not been published or made known. Nonetheless, all have found that food additives, fatty acids, vitamin and mineral deficiencies or rather nutritional factors are very much related to ADD/ADHD. Subjects of these studies have either participate in elimination diets, nutritional supplementation, behavioral observations and self-reporting. Due to the nature of most of these researches funding, these studies are more likely conducted on young children and adolescents. There have been keen interests in young children as they are much more likely diagnosed with ADD/ADHD. There are also studies conducted on adults.

These studies are which are conducted by renowned institutions such as Harvard University, Cornell University, Cornell Medical Center, Oxford University, etc. are therefore backed by the excellent reputation.

Common findings of these studies shows significant improvements in the behavior once food or food additive causing the sensitivity, allergy, or toxic reaction or nutritional deficiencies were removed from subject's diet. Poor attention ability and concentration among subjects have also subside as they develop reading ability, motor coordination, and IQ which may be linked to the subjects' ability to focus and stay on task.

What does all these point to?

Its impossible to ignore the extensive studies, clinical trials, and personal stories that attest to the fact that, once dietary deficiencies were corrected, the symptoms of ADD/ADHD either improved or disappeared altogether. Even if more research is needed to convince the medical community that, without a doubt, its worthwhile to insist that non-medicinal interventions be used to treat ADD/ADHD, the evidence is overwhelming enough to indicate that individuals themselves should take the steps necessary to educate themselves and explore the possibilities of a life without medication.

<http://www.smartalot.com/smartalec-university/277>

## Omega fatty acids and special needs children

August 16, 5:47 PM - [Des Moines Special Needs Kids Examiner](#) -  
Patricia McGuire

Does what your child eats affect his development and learning? The answer to that is yes, but with certain caveats. You already know about the problems with eating paint due to the lead, which has a negative effect on development and learning. You also know that a diet of fast food is not the best for your child. But what should be fed to your child?

It is well established that a balanced diet of whole grains, fruits, vegetables, and protein (sources vary depending on if you are a vegan or a meat eater) are needed for good health. But what about minerals, adding in vitamins, and the role of supplements of what you should be getting in your daily diet? One supplement has been receiving a great deal of attention recently - omega-3 fatty acids.



There are studies looking at omega-3 fatty acids (OFA) for different health problems, such as the heart. More importantly they are also being promoted for brain development in children, especially those with autism or ADHD.

So what is the story on omega fatty acids in special needs children? Omega-3 fatty acids have three main types found in the human diet. ALA (alpha-linoleic acid), DHA (docosahexaenoic acid), and EPA (eicosapentaenoic acid). The first one is found in nuts and plant oils while the latter two are in seafood, after the fish eat single cell organisms that synthesize the fatty acids. Humans need to eat these products since they are not produced by man himself. This is why they are called essential fatty acids. The body uses them for many necessary functions, especially in the growth and development of the brain.

The Journal of Autism and Developmental Disorders reviewed all the available studies on the effect of adding omega-3 fatty acids (OFA) in supplemental form to children within the autism spectrum. Only one study was randomized, and double-blind (the most accurate type of study), and it only lasted 6 weeks (most of the other studies were short also). While the children receiving the OFA did not show a statistically significant improvement compared to the placebo group, there was a trend in that direction. The other studies for the most part also showed a trend

toward improvement but were open label studies or case reports. The studies also varied in the amount of OFA that was given daily which could affect the findings. The reviewers summarized the study as saying that there was insufficient evidence to say yes or no, but did not feel that there was a problem giving it to the children.

There have also been studies looking at the effect of OFA for children with ADHD, including in the Journal of Developmental and Behavioral Pediatrics. Again the studies are suggestive, but not totally confirmed that this addition will help. Recently, there was a study on the effect of expectant mothers eating oily fish - salmon and tuna -daily (a good source of OFA) in the Journal of Child Psychology and Psychiatry. They found that mothers who regularly ate oily fish in early pregnancy had offspring with reduced levels of hyperactivity compared to mothers with no fish consumption. Those who regularly ate any kind of fish in late pregnancy had offspring with higher verbal IQs compared to mothers with no fish consumption.

The bottom line is that omega-3 fatty acids are needed by the body for brain and heart health. The studies suggest that these children would likely benefit from making sure that they get adequate amounts, if not a little extra.

**For more info:** One company that has a good source of OFA supplements for children is through Nutrilite. Their product is called [Brainiums DHA](#).

Since not all supplements are equal, a good source to compare products is [Consumerlab.com](#).

<http://www.examiner.com/x-14386-Des-Moines-Special-Needs-Kids-Examiner~y2009m8d16-Omega-fatty-acids-and-special-needs-children>



## Researchers Urge Ban on BPA Use in Plastics

Submitted by Prakash Sharma on Sun, 04/11/2010 - 09:27



In view of the connection of bisphenol A with cases of cancer, hyperactivity and other problems, the pioneering scientists, worldwide, yesterday recommended the British manufacturers to ban its use in any plastic which is used for baby bottles or baby food containers.

Also, a warning has been sent to the rest of the people against the purchase of baby bottles made with Bisphenol A.

BPA is basically a synthetic substance which is added to plastics for making them tougher. It is commonly used in many unbreakable, clear plastic bottles for baby food or drink and containers for adult drinks.

The researchers from the University of Auckland's Liggins Institute have found that even minute traces of BPA can be transmitted to infants from mothers via the placenta. The research, published this week, was led by Professor Murray Mitchell.

Mitchell explained that BPA can lead to breast and prostate cancer, hyperactivity, erectile dysfunction and other health issues. He is thus, urging for a complete ban of the use of BPA across the world.

The ban has already been imposed in Denmark, Canada and three US states.

<http://topnews.us/content/216300-researchers-urge-ban-bpa-use-plastics>

## **Sociological Development Issues Contributing to Attention Deficit Disorder and ADHD**

September 28, 2009 by [Marilisa Kinney Sachteleben](#) .



The ADD child is rare; it's our society that has Attention-Deficit Disorder. I have long been a student of learning disabilities, attention-deficit disorder (ADD) and ADHD (Attention-Deficit with Hyperactivity Disorder). I researched the issues surrounding ADD: diet, nutrition, medications, food additive allergies and environmental toxins and prenatal issues extensively. I taught in an experimental school where no processed or refined foods were allowed. I've have watched the development of younger siblings diagnosed with ADD and their experiences with diet, medication and allergy issues. Over my 23 year teaching career, I have had a chance to interact with children of many ages with ADD and ADHD, some on medication and some not.

I have the rare opportunity to study the long-term effects of Ritalin use in my husband who was one of the earlier children who was placed on Ritalin in 1968. I have three children who would probably be placed on an ADD medication and one, possibly two that would test positive for ADHD, if my husband and I would permit the testing. We will not. So that's totals about 30 years of ADD and ADHD exploration.

To revert to the quote that I began this article with, that is the conclusion to which I've arrived. I have long thought that ADD and ADHD were much more rare than the number of diagnoses would have us believe. If we count all the children, adolescents and adults on some form of ADD medication ( Concerta, Ritalin, Adderal, MetaDate, etc.) that number would likely be about ten times as high as the number of actual clinical cases of ADD or ADHD. I suggest that behaviors such as inability to pay attention, hyperactive behavior, impulse control problems, sleeplessness, lack of appetite and poor performance in school (all symptoms of ADD and ADHD) are not at all abnormal behaviors. They may be abnormal when compared to children's behavior of 40 years ago and back. But I suggest that the very behaviors we are medicating as ADD and ADHD are in fact, evolved survival skills developed by our species as in reaction to the huge changes in society.

Consider this. Everything about childhood has changed from about 1950-1960 to the present. There is a progression from rural to suburban and urban. Children do not

spend as much time outside working or playing as they once did. Proactive, imaginative play has been replaced by scripted, reactive, virtual and commercial play. Food has changed from home-cooked family meals around the table, to fast food, packaged food, junk food and snack foods. Family, by definition, has changed. We have exponentially more blended families, single parent families, unwed young mothers and families where children shuffle back and forth between parents and houses. Schedules for children have become hectic, chaotic and disorganized. There are fewer social boundaries, mores and conventional behavior. Society is fast, frenetic and fluorescent. I maintain that children have developed ADD and ADHD habits as coping skills for survival in a manic world. That's not to say that children may need help coping with ADD or ADHD behaviors. Visit my blog at [www.healthhelp4u.blogspot.com](http://www.healthhelp4u.blogspot.com) and [www.thespe](http://www.thespe)

[http://www.associatedcontent.com/article/2207827/sociological\\_development\\_issues\\_contributing.html](http://www.associatedcontent.com/article/2207827/sociological_development_issues_contributing.html)

## HEALTHY EATING: Studies link iron levels in children to ADHD

**By Joan Endyke**

[For The Patriot Ledger](#)

Posted Mar 24, 2010 @ 09:00 AM

Last update Mar 24, 2010 @ 09:02 AM

Children with a particular form of iron deficiency have attention issues and perform poorly in school.

A study conducted in France and published in the Archives of Pediatrics and Adolescent Medicine, found the majority of 4- to 14-year-old children (84 percent) with childhood attention deficit hyperactivity disorder had abnormally low ferritin levels. Ferritin is a type of protein that stores iron and is concentrated in the brain. The lower the iron, the more severe the symptoms.

Other studies report 20 percent of adolescent girls are iron deficient, which affects their cognitive ability. When ferritin deficiency is corrected, symptoms of ADHD improve, as do learning and memory.

Iron is essential to produce dopamine, a neurotransmitter that controls attention, behavior, and cognition. If not enough is available, the result can be dopamine dysfunction, symptoms of ADHD, and lower cognition.

Also linked to low ferritin is restless leg syndrome. When treated with iron supplements to raise ferritin, symptoms resolve. Research finds a strong correlation between severe ADHD in children and a family history of restless leg syndrome.

Doctors routinely check blood iron levels, typically with a finger-prick test in children, but they rarely check ferritin, which is measured with blood drawn by vein.

Iron is essential to make red blood cells that carry oxygen to cells; insufficient amounts result in iron deficiency anemia. Iron is also needed by the immune system and for the production of several neurotransmitters. Ferritin is a way to measure normal levels.

When iron supply is inadequate, red blood cells are made first and ferritin levels drop. Low ferritin is called iron deficiency, which can be present in the absence of iron deficiency anemia. In the French study, the children did not have iron deficiency anemia but had abnormally low ferritin levels with an average of 23 micrograms per liter, as compared to controls with a ferritin level of 44.

What causes low iron? It could be the result of a poor diet, or it could be related to genetic or environmental factors that decrease absorption of iron from food.

If your child has ADHD – and particularly if there is a family history of restless leg syndrome – or if he is a picky eater who rarely eats iron-rich foods, talk to your doctor about testing ferritin levels. Many labs give a normal ferritin range starting at 10 so you may not hear back from your doctor when ferritin is low. The average for women is 50 and for men 100. Below 30 is considered low in a child.

When ferritin is low, diet alone is not enough to bring it up; high-dose iron supplements are recommended. Never give your child iron supplements without first having him or her tested because they can be dangerous in the absence of iron deficiency, especially for young children.

Children should be encouraged to eat iron-rich foods to prevent deficiency. Food sources include beef, poultry, fish, iron-fortified cereals and breads, raisins and legumes. Foods with 20 percent of the daily value (DV) on a food label are a good source of iron. After the start of menstruation, young women generally require a multivitamin with iron to keep up ferritin levels. Studies find when ferritin is boosted to normal in adolescent girls, test scores improve.

*Read more about iron, what foods provide it and what affects its absorption, and find much more iron info, at <http://ods.od.nih.gov/factsheets/iron.asp>*

*Joan Endyke is a registered dietitian with a master's degree in nutrition and food science. She is also a certified personal trainer and is the nutrition director at Fitness Unlimited.*

*Readers may send questions about nutrition to Endyke at Fitness Unlimited, 364 Granite Ave., Milton, MA 02186 or by E-mail to [jendyke@fitnessunlimited.com](mailto:jendyke@fitnessunlimited.com).*

*The information in this column is not intended to diagnose individual conditions. Readers should see their doctors about specific problems.*

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[http://www.patriotledger.com/business/business\\_columnists/x1009755518/HEALTHY-EATING-Studies-link-iron-levels-in-children-to-ADHD](http://www.patriotledger.com/business/business_columnists/x1009755518/HEALTHY-EATING-Studies-link-iron-levels-in-children-to-ADHD)

## Studies Link Side Effects of Lead Exposure to ADHD in Children

Published: February 4th, 2010



New research into the causes of attention-deficit hyperactivity disorder (ADHD) seem to suggest that lead exposure could be a contributing factor for up to 30% of ADHD children.

The findings from two new studies, published in this month's issue of the journal *Current Directions in Psychological Science*, suggest that exposure to lead may be the second leading cause of ADHD, after genetics. Researchers said they found a consistent link between elevated lead levels and ADHD signs in children.

Scientists have been able to account for only about 70% of all ADHD cases through genetics, considered to be the primary cause. However, the cause of the other 30% of cases has been hard to determine.

The new studies found that children with ADHD had higher blood lead levels than those who do not show signs of the behavioral disorder. Researchers also found that the higher the blood lead levels, the more signs of ADHD were present in children's behavior. High blood lead levels can also result in lead poisoning. The U.S. Centers for Disease Control and Prevention (CDC) consider 10 milligrams of lead per deciliter of blood to be the level of concern for lead exposure.

Blood lead levels traditionally considered to be lead poisoning can result in nervous system injury, brain damage, seizures or convulsions, growth or mental retardation, coma and even death. Most cases of elevated lead blood levels in children are caused by exposure to lead paint, which is still present in many older homes throughout the United States. If the paint flakes off the wall, young children could ingest the paint chips or breathe in the dust, causing elevated levels of lead in the blood.

These latest studies follow on the heels of research published in the last two months that has connected low levels of lead exposure to kidney damage in children, as well as depression and panic disorders in young adults.

<http://www.aboutlawsuits.com/studies-link-side-effects-lead-exposure-adhd-8061/>

## **Study: Chiropractic Care Helps Adults with Attention Deficit Disorder**



### **ADD/ADHD Sufferers May Now Find Relief Without Medication**

On Sept. 4, the World Chiropractic Alliance (WCA) announced in a [press release](#) that a pilot study conducted by Dr. Yannick Pauli, the director of the Centre Wellness NeuroFit in Lausanne, Switzerland, found that chiropractic care may help adults with concentration problems associated with attention deficit and attention deficit - hyperactivity.

The National Institute of Mental Health (NIMH) states that the primary characteristics of Attention Deficit Disorder (ADD) and Attention Deficit - Hyperactivity (ADHD) include inattention, hyperactivity, impulsiveness or a combination thereof. Generally, these symptoms appear early in a child's life, but because many normal children exhibit them, a qualified professional should make an appropriate diagnosis before it's assumed a person has either ADD or ADHD.

According to the WCA, there is sufficient research to conclude that the ability to concentrate is affected in several different disorders, including ADD, ADHD, traumatic brain injuries, dementia, Alzheimer's disease and Parkinson's disease.

The WCA says that between 1 and 6 percent of adults and 3 and 10 percent of children suffer from ADHD in the U.S. The NIMH estimates that between 3 and 5 percent of American children have ADHD; that amounts to approximately 2 million children. Teens and adults who suffer from ADHD have greater risks associated with daily living and general activities. For example, studies have found that ADHD sufferers have higher rates of car accidents, increased risk of substance abuse, greater risk of failing in school, greater difficulty managing money and increased chances of divorce. Typically, ADD and ADHD symptoms are treated with medications or drugs known as stimulants.

Dr. Pauli is a chiropractor specializing in wellness neurology. In his study, he used an objective measure of attention, called a continuous performance test, rather than a specific diagnosis for ADD or ADHD. He explained the performance test is "a computer-based evaluation that objectively measures various parameters of attention." He said the system is the same one used by some neurologists and psychiatrists "to find the exact dosage of medication they are going to prescribe for attention deficit sufferers."

Dr. Pauli explained the study: "We used objective outcome measures to evaluate attention in nine adult patients before and after two months of wellness chiropractic care. All patients experienced significant improvement in concentration and 88% normalized parts of the test. Although the results are preliminary and more research is needed, the outcome of the study suggests that patients suffering from attention deficit benefited from chiropractic care."

Dr. Paul said the spine is as much about neurology as it is about "biomechanics." He said that the articulations and muscles of the spine are rich in "mechanoreceptors" (sensors that send information to the nerve system). He explained that each time the spine is worked with or manipulated, it activates neurological circuits "in the direction of the brain" and brings "the nerve system into balance."

Dr. Pauli said that chiropractic manipulation affects the brain's cerebellum, a small area at the back of the brain that has been shown to involve attention. "If the cerebellum does not function at par, the rest of the brain becomes somewhat clumsy and by activating the spinal receptors and balancing the cerebellum, we help the brain function better," he said.

In summation, Dr. Pauli said of his study that the "preliminary results suggest that attention can be improved naturally with chiropractic. As a chiropractor specializing in wellness neurology, I understand that the spine is as much about neurology as it is about biomechanics."

Sources:

Press release, Chiropractic May Help Adults Suffering from Attention Deficit;

<http://www.newswise.com/articles/view/533031/>

NIMH; <http://www.nimh.nih.gov/publicat/adhd.cfm#adult>

[http://www.associatedcontent.com/article/368789/study\\_chiropractic\\_care\\_helps\\_adults\\_pg2.html?cat=5](http://www.associatedcontent.com/article/368789/study_chiropractic_care_helps_adults_pg2.html?cat=5)



## Study links lead with ADHD in children

by JEAN ENERSEN / KING 5 News

Posted on April 10, 2010 at 12:34 PM

Updated Saturday, Apr 10 at 4:45 PM



You would never suspect 2-year-old Bella was put in danger by an old environmental toxin, lead. But last year her mother had a nagging feeling.

"It was just a hunch. And it was such an unlikely hunch that I figured I should act on it," said Katrine Jensen.

Public health experts say there's an entrenched belief that lead is not a problem in our state. And Bella's pediatrician wasn't worried.

"She said if I was concerned we should test, although she didn't think she was at risk, because this is not old paint," said Katrine.

But a simple blood test revealed the lead in Bella's body was well above what the federal government considers normal.

It's a test Dr. Catherine Karr thinks more children should get. She heads the pediatric environmental specialty unit at the University of Washington.

"We haven't had a long legacy or history of frank poisoning with lead in our area, it's not so much on the radar screen for the usual, the average pediatrician," said Dr. Karr.

She says more and more research shows even low lead levels can harm children.

The latest study showed a link between lead in children and parent and teacher reports of ADHD symptoms like hyperactivity and attention problems.

So how much lead is too much?

"There is no safe level of lead exposure. We don't have a threshold below which we don't see effects especially on IQ cognitive ability in children," said Dr. Karr.

Some toys contain lead, so Bella's parents replaced hers. The health department tested the home, including the old paint. Lead in paint wasn't banned until 1978.

They took samples of the drinking water. Old pipes can leach lead. Those and soil are the main suspects for lead exposure.

An estate sale trunk with old lead paint was the culprit. Bella had used it to pull up when she started to walk.

"I think it was her just sucking on the corners that did it," said Katrine.

Bella still has detectable lead in her blood more than a year after her exposure.

<http://www.king5.com/health/childrens-healthlink/Study-links-lead-with-ADHD-in-children-90527934.html>

## **Synergistic Effect of Prenatal Tobacco and Early Lead Exposure on ADHD**

Pauline Anderson

November 26, 2009 — Children who were exposed to prenatal tobacco smoke and have high blood lead levels are more than 8 times more likely to have attention deficit/hyperactivity disorder (ADHD) than youngsters with neither of these exposures, according to a new study.

The study results suggest that the combined effect of prenatal tobacco and childhood lead exposure is more than just the sum of the 2 separate exposures; rather, there is a synergistic effect that is even greater than what would be expected if the individual exposure risks were multiplied.

The authors estimate that more than one third of ADHD cases can be explained by the combination of these 2 exposures.

The study should be a wake-up call for women planning to become pregnant, said the study's lead author, Tanya Froehlich, MD, MS, from the Department of Pediatrics at Cincinnati Children's Hospital Medical Center in Ohio. They should not only quit smoking but plan to reduce as much as possible their child's exposure to lead, she said.

The study was published online November 23 in *Pediatrics*.

### **Wake-Up Call**

For the study, Dr. Froehlich and colleagues used the National Health and Nutrition Examination Survey, a multistage, nationally representative survey of the US population in 2001 to 2004. The sample included 2588 children aged 8 to 15 years.

Using caregiver responses to the National Institute for Mental Health Diagnostic Interview Schedule for Children, researchers determined that 8.7% of the sample met gold standard diagnostic criteria for ADHD, as defined by the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition*. This is equivalent to 2.4 million American children.

To assess prenatal exposure to tobacco smoke, researchers asked caregivers whether the child's biological mother smoked at any time while pregnant. Children who were exposed to tobacco prenatally were more than twice as likely to meet ADHD criteria compared with children who were not exposed (adjusted odds ratio [AOR], 2.4; 95% confidence interval [CI], 1.5 – 3.7).

To ascertain current blood lead concentrations, researchers used graphite furnace atomic absorption spectrophotometry. They categorized these levels into tertiles of low, medium, and

high exposure (high exposure was 1.3 µg/dL or more). Compared with children in the lowest tertile, those in the highest tertile were at significantly higher risk for ADHD (AOR, 2.3; 95% CI, 1.5 – 3.8).

"We're showing this effect of lead even at very low exposures," commented Dr. Froehlich, adding that this level is significantly below the limit of 10 µg/dL currently designated by the Centers for Disease Control and Prevention.

When these 2 exposures were added together, the risk for ADHD shot up dramatically. Those who were exposed prenatally to tobacco and who were in the highest tertile of lead exposure had a greater than 8-fold increased likelihood of ADHD (AOR, 8.1; 95% CI, 3.5 – 18.7).

Dr. Froehlich explained that both prenatal tobacco and childhood lead exposure perturb the brain dopamine pathway, which is known to be disrupted in ADHD. Animal studies have shown that nicotine exposure in utero causes decreased brain dopamine metabolism. Experiments that involved adding lead to brain cell cultures found decreased dopamine neuron length, as well as decreased dopamine uptake by brain cells.

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” **Cracks in Foundation**

In describing this synergistic effect, Dr. Froehlich explained that tobacco and lead exposure effectively provide a "double hit" to the brain dopamine system. She likened the 2 exposures to cracks in the foundation of a building. "If you have a building that has 1 crack in the foundation, it may be somewhat weakened, but things may dramatically destabilize if you add another crack in the same area."

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The authors estimated that 38.2% of ADHD cases among 8- to 15-year-old children might be attributable to prenatal tobacco exposure, lead concentrations of more than 1.3 µg/dL, or both. This corresponds to 900,000 cases of the estimated 2.4 million cases of ADHD in this age group nationwide.

These exposures are very real: A 2004 population-based study found that about 15% of women in the United States smoked during pregnancy. As for lead, an estimated 1.8% of US children had blood lead levels above 10 µg/dL in 1999 to 2002, and almost 14% had levels of 5 to 9 µg/dL.

Even though lead was removed from paint manufactured in the United States in 1978, it is still found in the paint of older houses, in old pipes, in some children's toys manufactured in other countries, and in some ceramic serving dishes, Dr. Froehlich told *Medscape Psychiatry*. "Lead was also in gasoline for quite some time," he added. "As a result of having been in so many products, lead is in the soil in many areas, so kids can absorb or ingest it after playing in the soil."

The authors estimate that the number of ADHD cases would be reduced by 25% if exposure to lead were reduced. Similarly, a reduction to prenatal tobacco exposure could result in 21.7% fewer cases of ADHD.

### **Enforce Laws**

To reduce the risk that their baby will develop ADHD, women who are planning a pregnancy or who have the potential to become pregnant should quit smoking. As for reducing exposure to ADHD-related toxicants later on, society as a whole could do more to "enforce laws making landlords clean up the lead that's in the housing stock that they rent to people," said Dr. Froehlich.

Where there are lead pipes, families should let the water run for a bit before taking a drink from the tap. Kids should be especially vigilant about hand washing after playing outside in soil, or in areas in the home where there may be lead dust from old paint or old window sills or casings. Parents should also be aware that children who are deficient in iron and calcium tend to absorb more lead.

One of the limitations of the study is that it cannot actually prove that these exposures cause ADHD, the authors note. The study cannot rule out, for example, that genetic factors or confounding factors such as prenatal alcohol exposure, may explain the relationship between these exposures and ADHD. In addition, the study's assessment of prenatal tobacco exposure was based on caregiver reports that did not take into account dose response or timing effects.

When asked for a comment on these findings, Glenn J. Kashurba, MD, a child and adolescent psychiatrist in Somerset, Pennsylvania, said the study is important because it shows that prenatal tobacco and lead exposure are independent risk factors for ADHD and that combined exposure is even more dangerous.

"Any study that calls attention to the significant negative consequences of tobacco, lead, and other prenatal toxins can decrease the risk of problems for children and families in the future," he told *Medscape Psychiatry*.

*The authors have disclosed no relevant financial relationships.*

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<http://www.medscape.com/viewarticle/713067>



## Time Moves Too Slowly for Hyperactive Boys

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*Though we find it interesting that the concept of time plays a role in a variety of psychiatric issues, we maintain that Ritalin is an absolute last resort. Proper diet & nutrition, removal of all food toxins (MSG/Aspartame/HFCS), and an attempt to identify allergic reactions to foods & household chemicals should be the first line of action.*



Children with attention-deficit hyperactivity disorder might appear rowdy and undisciplined, but they are actually trying to cope with a faulty perception of time.

What to most of us seems like a short stretch of time would drag unbearably for someone with ADHD, says Katya Rubia of the Institute of Psychiatry at King's College London. Her team's research, reported this week, adds to a growing body of evidence for the importance of time perception in a wide range of psychological disorders.

ADHD affects around 5 per cent of children globally, most of them boys. Studies relating to the disorder have focused on patients' short attention spans and impulsive behavior. But ADHD is characterized by a shortage of dopamine, which is known to affect time perception, so Rubia and her colleagues wanted to know if this was the source of the kids' problems.

The researchers used MRI scans to show that 12 boys with ADHD had less activity than usual in the frontal lobe, the basal ganglia and the cerebellum, all areas of the brain known to be crucial for time perception. These boys were also worse than 12 other boys at estimating how long circles appeared on a screen before vanishing.

When they were given the drug methylphenidate, aka Ritalin, which boosts dopamine levels and is used to treat ADHD, brain activity in the ADHD group became indistinguishable from that of the healthy boys. "Ritalin enhances brain regions that are important for time perception in ADHD children," concludes Rubia. The results are published in a special issue of *Philosophical Transactions of the Royal Society B*, which is devoted to time perception (DOI: [link](#)).

Rubia believes this is evidence that faulty time perception causes the major symptoms of ADHD, by making children perceive even short periods of inactivity as inordinately long and boring.

Because novelty-seeking and risky behavior increases dopamine levels, children with ADHD may become hyperactive as a way of “self-medicating” with dopamine.

Catalin Buhusi of the Medical University of South Carolina in Charleston is an author of another paper in the themed issue of the journal. He says the results fit his own research on how intense activity or distraction warps our time perception, so that time appears to fly.

Buhusi’s theory is that when we are engaged in an intense task, the working memory required to execute it is too large to allow simultaneous tracking of time, so it appears to pass without us noticing. “We know that disruptions, distractions or plain simple fun have the ability to disrupt tracking of time in normal people,” he says. “I think ADHD children have even more of a problem with it.”

Researchers are realizing that faulty time perception may be at the root of many more psychiatric disorders. People with depression experience time moving more slowly than usual, for example, while those with mania perceive it as passing much faster. Kwang-Hyuk Lee of the University of Sheffield, UK, showed earlier this year that people with schizophrenia experience varying time perception (*Psychiatry Research* vol 166, p 174). It is highly disorienting when someone’s internal perception doesn’t match up with cues from the outside world, says Lee. “Most psychiatric disorders are associated with a certain discrepancy between objective worldly time and subjective time,” he says. “At some point, patients would need to meet with reality.”

<http://www.sott.net/articles/show/186474-Time-moves-too-slowly-for-hyperactive-boys>

<http://blogs.healthfreedomalliance.org/blog/2009/06/12/time-moves-too-slowly-for-hyperactive-boys/>

## Yoga aims to help with recovery, wellness

By [Emily Wilkins](#) (Last updated: 11/15/09 7:40pm)

Yoga no longer is only for the young, the flexible and those few who look good in spandex.

Known as an activity that encourages relaxation of the mind and a good deal of flexibility, yoga slowly is becoming a supplement to programs targeting both physical and mental recovery and wellness.

Psychology junior Sarah Tarnowsky is part of a group leading the way with such research in Yoga Medics, a medically based therapy center offering yoga classes to those who have medical conditions, but would still benefit from the act of doing yoga.

“We’ve done everything from knee surgery to brain trauma to any type of disability,” said Tarnowsky, who spent the summer interning at Yoga Medics, which is based in Michigan, doing research on various treatments and their goals, comparing them to the results of yoga.

“The thing about yoga is that it’s more than physical,” Tarnowsky said. “You’re allowing your mind to let go of everything so it decreases stress...it re-energizes your body. It’s more than solely a muscle building, muscle strengthening.”

Yoga instructor and kinesiology doctoral student Erin Kussel said she agreed yoga can be beneficial to a wide spectrum of issues, as opposed to treating a single problem.

“Physical therapy deals with a wide range of injuries; yoga balances out the entire body,” Kussel said. “It’s a nice compliment to what physical therapists do.”

Yoga Medics is not centered in one place, but offered in six locations, as well as hospitals and other facilities.

The program also has the ability to visit clients at home if they are unable to make it to a class.

Sarah Fink, co-founder and president of Yoga Medics, said the company’s results so far have helped to boost not only the support for the treatment, but the creditability of the program.

“Doctors are supportive of what we do,” Fink said. “It’s really been pretty well accepted, we were able to prove to them that it works.”

Fink said she first got the idea while working in health care when she realized the system needed something more holistic.

She combined her love of yoga with her career and started Yoga Medics in 2007, collaborating with a variety of different doctors to put the program together and offer different aspects than experienced in a typical medical treatment.

Since beginning the classes, she estimated a couple hundred people have been helped.

“The people who needed yoga weren’t getting it because yoga was for the young and healthy — I wanted to get it to the people who could really benefit from it,” Fink said.

Certain classes, such as ones for spinal problems, do not require a doctor’s referral and can be taken by anyone.

Yoga Medics also is going beyond physical recovery and is in the process of developing yoga to help people cope with mental disorders as well.

The group plans to include programs for individuals dealing and recovering with eating disorders, alcoholism, ADD, ADHD and Asperger’s syndrome.

“(We) focus on teaching people concentration, teaching people how to focus and slow down their minds and thought process,” Fink said.

Medical technology junior Kelly O’Donnell said she has experienced the benefits of yoga even though she didn’t attend to better a medical condition.

“Toward the end of class, you feel a complete calm over your body that helps you to really refocus,” she said.

Tarnowsky added that she has seen proof of yoga’s positive effects on those who came into the program with, or for, a medical condition.

“A lot of people said a few weeks into Yoga Medics they didn’t have to take their (medicine) as much,” she said. “Some said they didn’t have to take them at all.”

*Those interested in learning more information about Yoga Medics or wanting to enroll in a class can visit its Web site at [yogamedicas.net](http://yogamedicas.net).*

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[http://statenews.com/index.php/article/2009/11/yoga\\_aims\\_to\\_help\\_with\\_recovery\\_wellness](http://statenews.com/index.php/article/2009/11/yoga_aims_to_help_with_recovery_wellness)