Pure Facts

Newsletter of the Feingold® Associations of the United States

October, 1989 Vol. 13, No. 8

The Mentally or Emotionally Disabled Child and Adolescent

The problem of adolescent mental illness is growing rapidly, but support services are being developed.

As many as 14 million U.S. children under the age of 18 may be suffering from mental illness according to a study conducted by a committee of the Institute of Medicine. Estimates ranged from a low of 7.5 million (12 percent) to the high of 14 million (22 percent).

The problems identified by the committee included: depression, autism and hyperactivity.

Depression

This is being seen more and more frequently, and in children of increasingly younger ages, according to John C. Pommery, M.D., in an address to the American Academy of Pediatrics. It is difficult to diagnose in the child because depression can sometimes manifest as behavior problems. (See *Pure Facts*, October, 1987 for more information on depression.)

Stress Disorder

Another increasingly common phenomenon is "post traumatic stress disorder", according to Lenore C. Terr, M.D., professor of psychiatry at the University of California, San Diego. The trigger can be a major shock, or it can be the result of ongoing stresses.

Symptoms of this disorder are likely to be: changes in cognitive skills and perception; fears; repetitive behaviors.

Male vs. Female Ratios

The suicide rate for adolescent males is higher in most countries than for females, according to the American Academy of Child and Adolescent Psychiatry. In the United States, the male risk for suicide is between 3 and 4 times that for females. European girls also have a much lower rate than their male peers.

But in some Latin American and Asian countries, as well as in Portugal, the suicide rate for girls is as high or higher than for males.

Hereditary Factors

Researchers have found evidence of hereditary factors in individuals who suffer from depression. Other research indicates that there may be a hereditary component in suicide.

Dr. John Mann of the Cornell-University Medical Center reported that suicide victims tend to have an abnormality in the production and use of serotonin, one of the many chemical messengers that brain cells use to communicate.

Serotonin abnormalities have also been suggested in hyperactive children.

Finding Help

Parents seeking help for their emotionally disabled child or adolescent may find that most services are designed for adults and their families. But the need for programs to serve adolescents is critical. Even a rapid expansion of support groups and mental health services has not been able to address this need.

The time when parents become aware of the need to seek out help is generally the time when the family is in crisis. This makes it particularly difficult to locate and evaluate their options.

Professionals who are highly qualified in some areas are not necessarily the appropriate resource for a child or teenager. And for-profit treatment centers may not inform families how severely limited insurance coverage is.

Where to Look

A central resource for the problem of adolescent emotional disabilities was established at Portland State University (Portland, Oregon) in 1984. The purpose of the Research and Training Center is to improve services for mentally/emotionally handicapped children and their families.

During the past year the Center funded five projects to develop statewide parent organizations. These are located in Hawaii, Minnesota, Montana, Virginia and Wisconsin. These model groups will serve as prototypes for other parent-run support groups.

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Special Issue on Mental and Emotional Disabilities

Our Foster Child

I didn't know if we could help Ruthie; her problems were so severe.

When the case manager told me the child I would be taking into foster care was "hyperactive" I knew we were the right family. We had followed the Feingold Program for almost five years and I conducted monthly meetings for our local chapter.

But then we learned the rest of the story, and it was grim. Ruthie was seven, but mentally was only about nine months old. She was non-verbal, never sat still, banged her fist to the side of her head, ground her teeth constantly, was abusive to others and could not be left alone for even a second.

Her natural mother reported that she banged on windows and the television. She took off her diapers and smeared feces all over the walls...and the list goes on.

This behavior classified Ruthie at what is called level three. (Level one is the highest functioning.) A level three child had never been placed in a private home, but the state was initiating a pilot program and Ruthie was a part of it.

We saw the behaviors which had been described to us, only worse. In addition to having a baby, a 3 year old, and a teenager, I provide full time day care in my home.

Ruthie's only interaction with the children was walking up to them and banging them with a toy, or grabbing their hair, knocking them a few times and then walking away – still holding on to their hair.

With constant love, consistant behavior corrections and the Feingold diet, our foster child began to change. She learned to go up and down the stairs with only verbal direction; she was toilet trained during the daytime hours – wearing underpants, not diapers; she stopped grinding her teeth; the banging of her head stopped; she began freely hugging and kissing both the members of our family and the children in day care; she played, and learned to work the "busy box" toys; she listened and responded to verbal directions and she was able to make and keep eye contact.

The change in Ruthie was so dramatic, the pediatrician who followed her since birth could not believe it was the same child he had been treating.

She stayed with us eleven months until a change in jobs forced us to move to another state. Ruthie's natural mother would not permit her to come with us so she was placed in another home and a different school. She was much easier to place this time since she was now functioning at level two!

In her new home there was no attempt to keep Ruthie on the Feingold diet and her behavior quickly deteriorated. I am told that she is classified at level four, with behavior far worse than ever before. She now bites herself and others, wears diapers all the time, and has had diarrhea for nearly a year. She is black and blue from her elbows down, and on her thighs as a result of pulling and biting herself. The state has been unable to find anyone who will take Ruthie, so the only recourse left is institutionalization.

Ever since we were forced to give Ruthie up, we have fought and prayed to bring her back into our home, but placing children across state lines is something the bureaucracy hasn't been able to deal with – so far. But we are not giving up.

Meanwhile, our foster child will never know this, but she has helped many other children. Her remarkable change demonstrated to all those involved in her care how effective the Feingold Program is for these youngsters.

In my efforts to have Ruthie placed here in Michigan, I have come in contact with many professionals who have expressed an interest in learning more about the Feingold Program. Two area doctors are now refering patients to our association for help.

This month I will be speaking to a support group for families of children suffering from mental retardation. I hope our experience will encourage them to consider the influence diet has on the behavior of their children.

Marjie Koons, President
Feingold Association of Michigan

Editorial Note

How Does Feingold Fit In?

Can food additives and salicylates contribute to the behavior problems of children/adolescents with mental or emotional disorders?

Based upon Dr. Feingold's clinical observations and the experience of some member families the answer appears to be "yes", at least in some cases.

Since there is no way to predict who will benefit from the Feingold Program, the same trial period used by anyone testing the program would be a suitable test for the hyperactive child suspected of having an underlying mental/emotional disorder. For a youngster under close supervision the test would actually be simpler.

The inclusion of "hyperactivity" as a mental or emotional disorder would be disputed by many Feingold parents. This certainly does not fit the child who behaves normally on the program, and becomes hyperactive only when exposed to synthetic additives or salicylates. On the other hand, it is typical for the child suffering from a mental or emotional disorder to have hyperactivity as one of the most noticable symptoms. Thus, some include hyperactivity itself as a disorder.

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An Adolescent Under Stress

The Feingold Program had been the answer for our younger son, but our teenager needed a different kind of help. Both boys are chemically-sensitive.

Our older son, who I'll call Matthew, was a bright and pleasant boy. Looking back, I can see some of the early indications of future problems. I believe it was an excessive exposure to stress, combined with a genetic predisposition, which would later lead to the development of a biochemical imbalance.

It wasn't very long ago that doctors would have concluded that Matt's problems were the results of poor parenting (Mom's fault). While vestiges of this attitude can still be found, most professionals now look toward biochemical factors.

Matthew was only two when my mother died, but it was clear that he knew she was gone and would not return. Two is a crucial age; it's a time when a child begins to learn about safety and trust.

Like many children who later have trouble coping, Matthew was unusually sensitive to the feelings of others. Why does one child react so profoundly to happenings around him, while siblings may be entirely different? It's because we're all so different, one doctor explained – as though one child is made out of metal, one of plastic and one of glass. The first can withstand just about any stress, the second is not as tough, and the glass child is fragile.

Matthew was in fourth grade when he was shaken by the death of my father, and soon afterward by the murder of my cousin, to whom I was very close. For a year afterward, he didn't want me or his father out of his sight. To him, the world had become a threatening place.

When he was 13 (a tough time for *most* kids) Matt was exposed to a series of crises, all within a short time. A holiday trip to our relatives included: being stranded at the airport all day, his brother's hospitalization as a result of an injury, my grandmother's sudden death, a hazardous drive to attend her funeral, with the sight of car wrecks along the ice-encrusted highway. Again, he watched me suffer from grief. Not long after we returned home, a close family friend died of cancer.

Each new experience seemed to be confirmation to Matthew that life was dangerous. Within three months we started to see uncharacteristic behavior which became progressively worse.

My husband and I began the frustrating search for answers. We were to take many routes, see many doctors, and eventually locate the support services which are out there.

Within the year, Matthew's problems were beyond our abilities to cope and hospitalization was necessary. Extensive testing in the hospital, plus the arduous periods of trial and error to find an appropriate medication eventually led to a good response with the drug Stelazine. It's a powerful and potentially dangerous medication, but it has been an essential part of our son's recovery.

The Feingold Program continues to be a part of our lives. We have followed the program as a family for twelve years because my sons and husband are affected in various ways by additives.

It is my opinion that the majority of cases of biochemical imbalance, emtional disturbance, or mental illness are caused by a combination of stress and a biochemical (genetic) predisposition. I believe that medications are essential for recovery from mental illness, though the trial period for finding the right medicine and the right dosage can be frustrating

Can mental illness and chemical sensitivity have more in common than we thought? Dr. Feingold pointed to the genetic predisposition, and we know that "Feingold kids" are likely to be sensitive to stress of all kinds. Feingold volunteers have been told by many mothers that their hyperactive child is exceptionally vulnerable to noise, touch, and things which may assault the senses. A person with a mental illness experiences many sensory stimuli as extreme. We saw this exhibited in Matt. A bright light was perceived as *very* bright, a loud noise as intolerable, etc.

In reading about the new research on mental disorders, I keep running across terms like "dopamine", "serotonin", and "brain synapse connections". These are terms I found in the literature concerning hyperacitvity. And dyes have been implicated in causing brain synapse problems. Is there a linkage here somewhere? Is the chemical sensitivity on a continuum with biochemical imbalance?

Matt is now doing very well. He is stabilized on medication, lives at home, has a job, and attends college. We are extremely proud of our son, of how far he has come and how well he is doing today. There is help and hope, but any parent facing this will need a tremendous amount of information and assistance. The advocacy and support groups are there, with more forming all the time. Don't try to go through it alone.

Feingold, *from page 2*

In researching these issues, the writer was impressed with the openmindedness, energy and dedication of the parents and professionals championing the needs of these children. They share many similarities with the advocacy/support groups devoted to the adult with mental or emotional disabilities. But their sense of urgency is even greater, due both to the age of the children and the fact that these needs have been unmet for so long.

The child/adolescent branch of NAMI (National Alliance for the Mentally Ill) is only a year and a half old, and its membership already numbers 70,000, with chapters in 40 states.

FAUS is in contact with many organizations dedicated to bringing the issue of mental illness out of the closet. Groups with which we network include: NAMI, Wellmind Associations, the Canadian Schizophrenia Foundation, the Institute for Behavioral Research (autism), the Council for Exceptional Children and the Huxley Institute for Biosocial Research. Information is also exchanged with the American Academy of Child and Adolescent Psychiatry.

Their years of effort to enlighten the public has recently been bolstered by the hit movie, *Rainman,* and by *Life Goes On*, the new TV show which includes a young actor with Down syndrome.

The Dark Memories

Through my teen years I was placed on a variety of mind-altering drugs. It was a terrible experience.

All five of the kids in my family had the reputation of being "wound up". We all spent a lot of time outdoors. My parents were always shooing us out because if we were inside we would "get into things."

My behavior in school was not a problem; I did well and got along with my teachers. But social interactions with the other children were difficult for me. I was called a troublemaker and non-conformist.

Since I was overweight, I was given diet pills (amphetamines) when I was about eleven years old. (That was back in the days before the FDA banned them for weight control.) Then, a few years later, I took Ritalin; I hated taking it, and the drug didn't have any effect on my behavior. Other drugs were tried: Stelazine and Thorazine are two I can remember, but there were others.

Looking back, my behavior was not very far out of line before I started on the amphetamines. But I believe that this drug, as well as the others, were causing me to behave inappropriately. When I was on them I didn't feel like myself. It was like I couldn't control myself; I'd do things and not understand why. Now I can look back and see that these drugs were mind-altering substances.

> I knew this wasn't the real me.

My brother and I were both seeing a psychiatrist – the one who gave us the Ritalin. I told him I didn't like the drug, I didn't like the way it made me feel, but everyone said it would help me, so I took it. My brother would put the pill in his mouth, and then spit it out when nobody was looking, but I was the one who did what I was told.

One day I decided that if I took all of my drugs at once, then I would get rid of them and wouldn't have to take them anymore. My "overdose" was considered a suicide attempt, and I found myself in a psychiatric hospital. (This was required by state law.)

The ward I was in was made up of

just teenagers, and all of us were pretty heavily drugged. At times I was taking three different drugs simultaneously. I hated the way I felt; I knew this wasn't the real "me", and repeatedly asked the doctor to let me stop the medications. Finally he agreed, but took no steps to phase out the dosage. They were simply stopped – cold turkey.

The withdrawal was as bad as being on the drugs. I would alternate between being very depressed, uptight, lethargic, and then manic (having excessive energy). None of this was recognized as a result of the withdrawal; I was made to feel that everything was my fault.

While the hospital was not the horror chamber we sometimes hear about, it was a depressing place. There was no freedom; we had to be where we were told, doing what we were told. Most of the patients went through a cycle which started with resistance. Eventually, it would become apparent that this didn't do any good, and the patient would learn how to play the game. The goal was getting out, and we learned what we had to say and how we had to act in order to get it.

After almost a year I got out of the hospital. My new doctor wanted to put me in a half-way home, but I returned to my home instead.

As soon as I could, I left home, got a job and went back to school. My goal was to become a mental health associate. I felt I could make a difference in the system, and that I understood how to provide better care to people in need.

Instead, I became a wife and mother. When my son was four years old, I began hearing about a diagnosis of "hyperactivity". (This came as no surprise.) His doctor gave me the choice: Ritalin or diet. There was no way I was going to subject my little boy to drugs, so we began the Feingold Program four years ago.

We truly are a "Feingold family" as my husband and other children need the program as well. We are quite salicylate sensitive, and when I overdo them, or otherwise go off my diet, I end up with a headache. On the diet, I'm a much calmer person; and I've found that the ringing I used to have in my ears has disappeared.

Writing this story is a form of therapy for me. For many years I blocked the sad memories of my year in the mental hospital. If you had asked me a few years ago, I would have sworn I never had that experience. I guess I still

> I always felt I was to blame.

believed everything was my fault, just as I had always been told as a child. Then, while I was attending a Feingold conference, and listening to the speakers talk about our troubled children, it all came rushing back. It was very painful to acknowledge what had happened, but I'm relieved that this demon is out in the light of day and I can deal with it now.

I'm not yet ready to give you my name; maybe that will come with time.

Members Who Received Medication

Preston Edwards, M.D., a Feingold member, is interested in gathering information from those who received behavior-modifying medication during their childhood or teen years.

If you would like to share your experience with us – positive or negative – please contact:

Preston Edwards, M.D.
123 Waugh Drive
Galax, VA 24333

PIC Report

By Barbara Ballmer, FAUS Product Information Committee Chairperson

During the past year the Product Information Committee (PIC) sent just over 1,000 inquiry forms to manufacturers of food and non-food products; 400 were completed and returned.

Among the many new products PIC was able to add to our foodlist, we are especially glad to have added a source for mail order bread. For members who are very sensitive to corn syrup, it can be difficult to find suitable breads. The company is Natural Ovens of Manitowoc, Wisconsin, P.O. Box 2137, Manitowoc, WI 54221 (414) 758-2500.

Unfortunately, some of our favorite one-of-a-kind products became unacceptable:

* Artificial colors were added to Sorbee Gummy Bears.

* BHA and BHT is now added to the vitamin mix of Carnation All Natural Non-Fat Dry Milk.

* Synthetic color is being added to Kool-Aid Koolers to make it more like Kool-Aid.

* Mr. Bubble Powdered Bubble Bath contains red dye.

* The eyes of Rodda and Giambri marshmallow rabbits are artificial coloring.

During this past year we have gained more knowledge of food products and the industy in general.

* Sulfiting agents may be added as a preservative to sauerkraut packed in poly-bags and glass jars. These clear containers do not protect the sauerkraut from light as does a can.

* Some ice creams that advertise as all natural may contain artificial ingredients as add-ins. The ice cream base is all natural, but some add-ins may have artificial ingredients.

* Tuna packed in water and vegetable broth most likely contains tomatoes, green bell peppers, and red peppers (salicylates) in the broth.

* Hydrolyzed Vegetable Protein is sometimes listed in ingredient statements as "natural flavoring".

* In the United States the major sources of commercial pectin are lemon, orange, lime, and grapefruit peel, and apple pomice. Some of these sources are salicylates. Although pectin, after is it isolated, probably does not contain salicylates, it may have dextrose (a corn sweetener) added. There is also the possibility that an individual may be sensitive to the process for isolating the pectin.

Although we lost a few favorite products this year, I think that the industry is becoming conscious that more and more people are concerned about what they eat. Several companies are replacing animal fats and palm oil with cholesterol-free oils. We welcome this change for other reasons. These oils are more likely to be free of preservatives.

With the fierce competition between snack food companies, look for more all-natural snacks.

More microwave foods are appearing in the stores. We will have to watch the packaging of the new products that are meant to be microwaved on browning sheets. Manufacturers are just beginning to test for migration of chemicals from the sheets to the food.

Cutting Back on Cholesterol

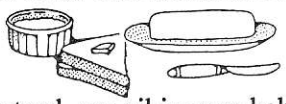
Dear FAUS,

"My child's pediatrician suggested the diet before we get on a medication. The problem that I have encountered is the use of butter instead of a substitute. My husband has to be on a low cholesterol diet and this presents a problem."

It really isn't hard to combine a low cholesterol diet with the Feingold Program.

There are some margarines on our list of approved brand name foods; generally they are available in health food stores. Butter Buds, a natural butter flavored substitute, is also approved.

But for reducing cholesterol, margarine is not necessarily the best choice. Margarine in stick form uses oil which has been hydrogenated, and the process of hydrogenation causes the oil to become "saturated". It is these saturated fats you should be avoiding on a cholesterol-reducing diet. Hardened fats are not significantly better than butter.



Instead, use oil in your baking and cooking whenever possible. The best choice for sauteeing is olive oil, which appears to help reduce cholesterol. A small pat of butter added to the olive oil will give some of the flavor you want without adding very much cholesterol.

As with many diets, you should concentrate on gradually improving your choices, not making drastic changes. A small amount of butter on those foods which cry out for the real thing – corn on the cob, perhaps – will keep you from feeling deprived.

In the same way, you may find it hard to give up whole milk on your cereal, but not care if you use skimmed milk in baking or in sauces. Look for a powdered low-fat or non-fat milk. In many recipes you may be able to simply add the powder directly, without first reconstituting it.

Cut back gradually on the whole milk. Start by blending a small amount of non-fat dry milk/plus water to a pitcher of whole milk. Each time you mix up a new batch, increase the proportion of the non-fat milk as you grow accustomed to the taste of it.

Continued on page 6

Cholesterol, *from page 5*

"Better Butter"

This is a good alternative to either butter or margarine. You won't need to add the salt if it is to be used just in cooking.

2 sticks (1/2 pound) butter, at room temperature
1/2 cup approved brand vegetable oil
1/4 teaspoon salt

Combine in blender or food processor. Pour the mixture into a plastic container and store it in the refrigerator. Once it is chilled, the mixture will become semi-hardened. You can use it in recipes or spread it on toast, etc. It will spread easily even when it is cold. (For a delicious creamy spread, blend in 1/2 cup of honey and omit the salt.)

In place of butter, there are other delicious spreads to consider.

The Best Peanut Butter

On a low cholesterol diet, stick with the "natural" peanut butters and those made up fresh at your supermarket or health food store. They contain just ground up peanuts. While there are well-known brands on our Foodlists, these generally contain added hardened (saturated) fats.

Dairy Products

Cream cheese can be used if it is done sparingly. Any cheese made from skimmed milk is good for those watching their cholesterol intake. Select cottage cheese, low-fat mozerella, etc.

Low fat yogurt can be substituted for sour cream in dips and as a topping for baked potatoes.

The heart of the low-cholesterol diet, is a variety of delicious and nourishing choices such as fruits, salads, vegetables, pastas, poultry, fish and whole grains. All of these fit in perfectly with the Feingold Program. Bon appetit!

Barbara Hoffstein,
Registered Dietitian

Thank you!

Your enthusiastic reception of our new **School Year Calendar** is gratifying. And thank you for your donations to this fund-raising effort.

Halloween's Coming

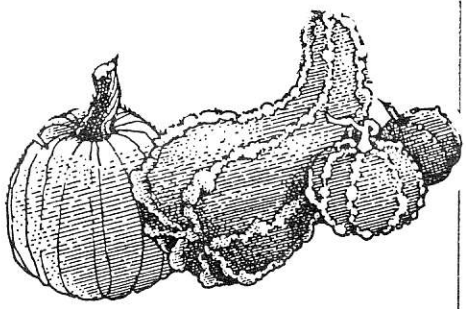
Historians can trace "All Hallows Eve" back to Ireland in the 5th century B.C. Each year at the official end of summer (October 31) the ancient Celts darkened their homes, dressed in costumes designed to discourage the deceased from inhabiting their bodies, and traveled through the village making as much noise as possible.

Centuries later, the Irish who immigrated to the United States brought a lighter hearted version of these customs.

The practice of traveling from house to house seeking treats is believed to have been taken from a ninth century European custom observed on "All Soul's Day".

Whatever the origin, this is not a favorite holiday for Feingold families – or for teachers who must deal with the chaos which often follows the next day.

To keep your little trick-or-treater from turning into a bona-fide goblin, be sure to be ready with alternatives to synthetically colored and flavored candy. Refer to page 31 of your *Feingold Handbook*.



United Way and CFC Donations

In some communities, Feingold members have been able to instruct their United Way or Combined Federal Campaign to forward some or all of their contribution to the Feingold Association.

The Association does not receive funding from government, industry, or other outside sources, and dues are kept as low as possible. Because of this, donations are very important in carrying on our program.

Please ask at your place of work if you are permitted to make a designated donation to the Feingold Association.

Disabled, *from page 1*

The Center publishes a *National Directory of Organizations Serving Parents of Children and Youth With Emotional and Behavioral Disorders.*

This directory lists 344 organizations in 49 states which provide services.

Parents of children in crisis need immediate guidance and support. They can contact the Research and Training Center at Portland State University, P.O. Box 751, Portland, OR 97207-0751, or can call (503) 464-4040.

Other resources available include:

Federation of Families for Children's Mental Health, 1021 Prince Street, Alexandria, VA 22314 (703) 684-7722

National Alliance for the Mentally Ill - Child and Adolescent Network, 2101 Wilson Blvd., Suite 302, Arlington, VA 22201 (703) 524-7600

The National Alliance (NAMI) has recently published a coloring book designed to help children understand mental illness. The book, entitled "Helping Each Other", may be obtained by sending $1 to: NAMI Resources at the Arlington, VA address listed above.

New Hope

New Hope is the name of a proposed residential program for mentally ill individuals ages 18 to 35. It will provide a wide spectrum of treatment, including a nutritious, junk-free diet.

To learn more about this non-profit venture, to be located in the Baltimore area, contact:

New Hope
P.O. Box 1841
Wheaton, MD 20902
(301) 946-6395

Pure Facts

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Public lectures

Food coloring may alter kids' behavior

By Susan Moses
Monitor staff

NEW ORLEANS

The current system of testing chemicals for safe exposure levels, with its strong focus on detecting carcinogens, can fail to uncover the psychological and behavioral consequences of exposure, according to Bernard Weiss, deputy director of the University of Rochester's Environmental Health Sciences Center.

In a public lecture titled "Environmental pollution and behavior disorders" at the American Psychological Association convention here in August, Weiss explained that behavioral and psychological effects often occur at exposure levels far lower than those that induce cancer or other physical effects.

Young children, and especially infants and fetuses are more sensitive to environmental contaminants and food additives than adults are, because their metabolic processes are less mature and efficient, Weiss maintained.

He cited a study by David Bellinger and Herbert Needleman in the early 1980s that measured intelligence test scores of 249 children, all from upper-middle class homes in the Boston area, who had been exposed to different levels of lead before birth.

The entire exposure range was well within the safety limit set by the federal Centers for Disease Control. But the children at the high end of the scale scored 8 percent lower on the Bayley Mental Development Index than did children with lower levels of prenatal exposure. The phenomenon held true even though mean levels of exposure after birth were the same for both high and low prenatal exposure groups.

An 8 percent difference in performance may not seem dramatic, but when that figure is extrapolated to the general population, Weiss said, "I consider it a societal disaster." If the general population were to score only 5 percent lower on the Stanford-Binet IQ test, then only 990,000 people out of 100 million would score above 130, instead of the current estimate of 2.3 million, he said.

"The effects of lead are more firmly recognized in the pediatric community than among psychologists," he said in an interview after the lecture. "I don't think psychologists tend to be as aware of environmental chemicals."

Weiss also described research he and his colleagues conducted on the effects of FDA-certified food colorings on children's behavior.

Twenty-two children, ages 2 to 7, were recruited from a group of children who had been placed on the "Feingold diet," developed by pediatric allergist Ben Feingold. The diet excludes synthetic colors and flavors, various other additives and foods suspected of causing hyperactivity. Although none of the children was clinically hyperactive, their parents had found that the diet helped control other minor behavior problems. The children were maintained on the diet during the 11-week study.

The researchers concocted two soft drinks: a placebo with cranberry and caramel coloring, which were not on Feingold's prohibited list, and a drink with a mix of seven colors, each of which was approved by the Food and Drug Administration, but was excluded from the Feingold diet. The total amount of coloring in the trial soda matched the average daily intake of those colors by children on a normal diet, and was 50 to 60 times *less* than the FDA-approved allowable daily intake, Weiss said. The children drank the trial soda on eight of the 77 days of the study.

The colors they selected are found in a variety of foods. A food coloring known as Food, Drug and Cosmetic Yellow No. 5, for example, one of the prominent colors in their mix, is added to a number of children's cereals, including Cheerios, Trix, Froot Loops and Lucky Charms. It is also found in some pastries, brownie and cake mixes, and candies, usually in a blend with other colors.

Two children were affected by the drink mix, one dramatically. She was 34 months old—the youngest child in the study. On days when she drank the trial soda, her mother noted that she whined, threw things, ran away, acted "as if driven by a motor," and had a short attention span far more often than on other days. Her age and "biological variability" probably made her more sensitive to the coloring than other children, Weiss said after the lecture.

Two responders out of 22 subjects is not a large percentage, Weiss admitted. But he asked, "if bilious green had been developed as a food color, and its manufacturer had sought approval with a claim that only 5 percent of the children consuming it got cancer, what would have been the response in Congress even had the FDA granted the request?"

When James Swanson and Marcel Kinsbourne (1980) tested the effects of larger doses of food colorings on clinically hyperactive children, 17 of their 20 subjects had impaired performance on a paired-associates learning task following exposure to the color blend.

Despite the potential effect food coloring has on behavior, Weiss said, "colors are not tested for behavioral toxicity. They're tested for cancer, or other [physiological] effects."

Jean Taylor, a team leader at the FDA's division of toxicological review and evaluation, disagreed. She maintained in a telephone interview that researchers "look for both" behavioral and physiological effects when they test the safety of food additives. Behavioral abnormalities, such as unusual reactions of mice and rats to being handled by researchers, would be noted through the course of the study, she said, and would be thoroughly investigated.

She added, however, that specific neurobehavioral tests are not usually done for food additives, because "you're working with substances that are generally safe." She also said that "cancer is a major endpoint" in research, because if an additive is found to cause cancer at any dose level, it cannot be approved by the FDA, even for use in much lower levels. ■