**ALLERGY, TOXINS, AND THE LEARNING DISABLED CHILD**
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**Allergy, Toxins and the Learning-Disabled Child**

In 1965 we recruited a vivacious young woman as a technician in our neurophysiology and behavior modification lab. Although she had no college training she had been on the staff of the marine biology lab of a major university as a mass spectrometrist and micropaleontologist. She was a very intelligent, popular, outgoing, well organized and competent person capable of an enormous amount of skilled work.

Several months after joining us Mrs. Black became very irritable. She began to have serious marital problems. She became less competent at work. From having been the center of social activity, her office became a solitary cell. She began to choose very dark, often black clothing. She painted her bedroom dead black (enough of a reason for marital conflict). She painted her office dead black.

I began to think of Mrs. Black in psychodynamic terms. "She cannot accept the pressure of responsibility in a novel community that does not use time clocks and other management devices." "She cannot adapt to the importance of her husband's role in our program." "She has always controlled the society around her; and her habitual methods don't work in this therapeutic environment; therefore she is attempting to control by being sick."

Mrs. Black became increasingly fatigued, tense, antisocial, and incompetent. (She had spells when she could not type, and temporary periods when she could not read.) My response was exasperation -- after all, I knew she had greater capacity than she was presently demonstrating; and this childish retreat was not worthy of such a gifted person.

It occured that a hemphyliac student had a crisis and blood was needed. A number of staff went down to give blood. The nurses could not measure any blood pressure on Mrs.

Black. This fact managed to penetrate even my prejudiced head, and we rushed her to our internist, Dr. Sol Klotz.

After a thorough workup Mrs. Black ws returned to us with a diagnosis of food allergy -- pork and tomatoes being the primary villains. This was really too much for me. I called Dr. Klotz and said, "Sol, you have to be kidding. I mean, there has to be something wrong with her." You will notice, of course, that my brilliance neglectd to illuminate the fact that an allergy might be something profoundly wrong. After all, everyone knows that allergies are psychosomatic.

Sol and I have worked together for many years, and he tolerates my presumptions. He patiently instructed me on the importance of taking him seriously, mildly inquired if I had a diagnosis I would like to substitute; and we closed the issue. Pork and tomatoes were removed from her diet. In about six weeks Mrs. Black was again vivancious, fully alert, competent, a social butterfly, full of energy and enthusiasm. Her husband seemed somewhat bewildered by the rapid change. The marriage had obviously been set abubble with life again.

It took this event to force me to begin to take my own scientific value system seriously. For several years Dr. Klotz had been serving as primary care physician for Green Valley's adolescent students when they became ill. In those days we initially relied on the referring doctor's examination and history. (We no longer do this.) The children who were sent to Dr. Klotz for a variety of ills frequently returned with a diagnosis of allergy, and with prescriptions and routines for their treatment. Since I had a great deal of respect for Dr. Klotz, both as a person and as a physician, I did not allow my exasperation with his "fixation" to dissuade me from using him as our primary care physician; however, I was often heard to mutter, "Well, an allergist just has to diagnose allergies."

Imagine! Over the course of years a physician who I respected and trusted who had returned a very high percentage of students to us after careful evaluation with a diagnosis of allergy. Rather than being compelled by the evidence, I was snared in a psychodynamic prejudice and so, for years, ingored hard facts.

After the episode with Mrs. Black, we began to send students randomly to Dr. Klotz for allergy screening. The percentage of allergic students, often with no allergy reported in their histories, was extrememly high. This information was intriguing; however, we remained suspicious of the extremely high percentage. We began to screen all of our children for allergies.

In November 1972, Dr. Klotz reported that 103 of 107 sequentially admitted students had proven to be significantly sensitive to at least three of twelve allergens tested (1). These tests were conducted in a double-blind fashion -- the students did not know which injections were allergens and which were placebos, nor did the physician reading the initial response, nor did the nurses reading the delayed responses.

The nurses placed the skin test, forming blebs in the skin with standard allergens, then the doctor read the skin wheals (if any) 10 minutes after the injection. The nurses read any delayed reactions at 24, 48 and 72 hours.

The accumulation of data over the years (1962-1974) convinced us that a major factor in the disturbance of learning skills in children is an allergic reaction to ordinary substances and especially an allergic reaction to commonly eaten foods.

A large majority of the children sent to us, particularly the boys, are physically immature. This finding is widely reported in the literature of exceptionality. D. Sandberg has reported that a survey of 100 growth-retarded children indicated a great increase in growth when highly allergenic foods, such as wheat, corn, and milk, were removed from their diet (2).

Sandberg has more recently reported in great detail on the precise effects of food allergy on growth in height of children (3). He has found that, when these children are removed from the foods to which they are sensitive, that the growth curve normalizes but there is no "catch-up" growth.

"Catch-up" growth is a well documented finding. Children restored to normal diet after severe malnutrition, or taken off steroid drugs, or otherwise treated so that the growth curve normalizes, experience a spurt of accelerated growth and usually catch up with their age peers. The food-allergic child apparently merely normalizes his growth curve, but remains behind his age peer norm for actual height. However, Sandberg has found that if these children freceive hypodesensitization injections (very dilute preparations of food extract) the "catch-up" growth spurt does occur. Sandberg has demonstratd that growth is exquisitely sensitive to allergic stress. The growth curves plotted for his allergic subjects show an almost immediate response to eating allergenic foods, to the removal of allergenic foods from the diet, and to treatment or lack of treatment with hypo-desensitization injections. He chose growth as his measure because it is perhaps the most objective measurement that can be made in children.

P.J. Collipp reported that the asthmatic child and those who suffer from eczema are frequently developmentally immature (4). His center is coordinating a national study of the use of pyridoxine (vitamin B-6) with these children. A high percentage of allergic children demonstrate a poor tryptophane metabolism, and specific vitamin dependencies.

Edward L. Binkley, Jr., M.D. brought our attention to the fact that pediatric allergiest see a high percentage of hyperactive and attention deficited children, especially boys. He remarked that a sequence of minor physical anomalies (MPA) we reported as occuring significantly more commonly in children seen in special education settings was reported in the literature and that these MPA are common in an allergy practice.

Binkley's list of traits includes very fair complexion, electric hair, a double crown in the hair, epicanthal folds, low set ears, adherent earlobes, malformed ears, soft and pliable ears, high steepled palate, furrowed tongue, geographic tongue, curved fith finger, single

traverse (Down's line, or Mongoloid line), third toe longer than the second, partial fusing of the middle toes, and a gap between the first and second toes (5).

Similar information has been reported by M.F. Waldrop and C.F. Halverson, Jr., and by J.L.Rapoport, P.O.Quinn, and F. Lamprecht, for hyperkinetic children (6).

Our own list is considerably larger and was influenced by J.W. Tintera's report of characteristic physical traits in patients with insufficient adrenal-cortical functioning and resulting low blood sugar (7). (See pages 51-61 for the full list of minor physical anomalies associated with systemic disease, learning, behavior, and emotional disabilities).

MPA are seen in hyperkinetic children significantly more often than in normal children. They are seen in boys more often than in girls. They are often associated with a wide range of symptoms (fatigue, faintness, chills, tension, and the like).

We have surveyed populations in California, Texas, Florida and New York; and we have found that (of our entire list) the normal population averages about three of these anomalies. Hyperkinetic, learning disabled, and behaviorally disordered children average about seven, and psychotic or severely emotionally ill children average about thirteen MPA. These results are statistically highly significant. It is not at all likely that the distribution occurs by chance.

The distribution of these traits among populations is quite distinctive. The control populations fall in a normal bell shaped curve. This indicates that the usual random influence of genetic distrribution occurs to prouduce the traits in a control population. The treament groups fall into an approximately equal distribution. In other words, about the same number of children have five, six, seven, eight or more MPA to the top of the range. These numbers result in a flat line indicating that a strong non-random factor is influencing the ordinary genetic selection.

These distributions are charted below.

The discovery that our students have a significantly higher number of MPA lends support to other finds we have reported elsewhere. From 1968 through 1974 we monitored the entire population at our center on a wide range of biochemical assays. These assays also demonstrate that our group is significantly different from normal children and adults.

Ninety-nine percent of entering students do not demonstrate any spillage of free ascorbic acid on admisision. More than 80 percent do not demonstrate any spillage after loading with three grams of ascorbic acid per day for two weeks.

Almost no child admitted to our center demonstrates metabolic balance or efficiency. More than 90 percent are deficient in manganese. Almost all are deficient in iron and zinc, and most are toxically high in copper and lead. Eighty-six percent demonstrate irregularities in glucose and insulin metabolism. About 25 percent demonstrae extremes

in values of serum fats. Other indications of deficiencies, of malabsorption of food, and of poisoning are often found.

Leon Rosenberg has reported on a number of gene-linked vitamin-dependency diseases discovered in the last decade (8). In these disorders the body cannot metabolize ordinary foods efficiently, and must receive enormous multiples of vitamins.

If the urine demonstrates high values of homocystine, a metabolic product of tryptophan (an essential amino acid), it is cear that the body does not normally utilize pyridoxine (vitamin B-6) and therefore cannot metabolize tryptophan but consequently produces toxins. Children with this disorder are frequently diagnosed as autistic. Treatment for several months with 400 mg of pyridoxine a day enables the child to function normally. This supplementation must continue the rest of the child's life. It is not a question of a vitamin deficiency (not enough of the vitamin in the diet); but of a dependency. The child simply needs more of the vitamin than the typical child needs. The individual cannot efficiently handle the chemical and depends on an enormous quantity to be able normally to function.

TABLE I

DISTRIBUTION OF MINOR PHYSICAL ANOMALIES

CONTROL GROUP

0
1 XXXXX
2 XXXXXXXXXX
3 XXXXXXXXXXXX
4 XXXXXXXXX
5 XXX
6 X
7 X
8 X

N+42, Mean = 3.14 Median = 3 Mode = 3

LEARNING DISABLED CHILDREN

0
1 X
2 XX
3 XX
4 XXXX
5 XXX
6 XXXX
7 XXXX

8 XX
9 XX
10 XXXX
11 XX
12 XXX
13 XXX

N = 36 Mean = 7.36 Median = 6 No Mode

SEVERELY EMOTIONALLY DISTURBED

0
1
2
3
4
5
6 XX
7 X
8 XX
9 X
10 XXX
11 XXX
12 XXX
13 XXXX
14 XXXX
15 XXXXX
16 XXXX
17 XXXX
18 XXX
19 XX
20 XXX
21 XX
22 X

N = 48 Mean = 12.6 Median = 14.5 No Mode

Collip and his colleagues have found other metabolites of tryptophan, kynurenine and xanthurenic acid, are frequently high in immature, allergic, asthmatic, and eczematous children (9). Again, treatment with pyridoxine (which is the co-enzyme which enables efficient tryptophan metabolism) permits normal functioning.

We routinely study all of our children for the metabolites of vitamins, as well as protein, fat, glucose, and insulin chemistry. The evidence is markedly clear that a high percentage of special children suffer from dysfunctions of metabolism.

The metabolic imbalance seems to be associated with hyper-sensitivity to toxins and with a very active allergy system.

Most people think of allaergies as causes of sneezes, coughs, asthma, skin rashes and hives. Allergies can, as well, effect the nervous system and produce a range of symptoms from convulsions to fatigue and irritability.

Walter Alvarez, M.D., in his forword to Allergies of the Nervous System by H. Brent Campbell, reported that for years he suffered from "Monday morning brain dullness (11)." He thought this merely the inevitable consequence of Monday mornings. He took an extended mountain climbing jaunt and was caught away from his supplies for several days. On returning to the support cabin he devoured an entire chicken. Shortly after returning home some hours later he went into convulsions. He had never begfore and never again suffered convulsions. The Alvarez family custom was to have chicken for Sunday dinner. On abandoning chicken Dr. Alvarez was abandoned by the dull brain of Monday morning.

Thirty years ago, Theron Randolph, M.D. presented a film of a young woman given (in a double-blind fashion)
placebo or beet sugar.12 The beet sugar triggered a three-day episode in which she appeared to be in a completely drunken state.

In May 1971 we admitted a fourteen year old boy, Dennis, who had suffered from allergic eczema as an infant. His secondary infections became so severe that the physicians determined to use heroic doe of cortisone. The
eczema and secondary infections cleared; however, the boy then became severely allergic to foods. he suffered projectile vomiting from most food. Most of us know that projectile vomiting is a symptom of serious brain tumor; however, most allergists know it as a symptom of severe food allergy. It does not seem too great a leap to suggest that the brain may directly be involved in these allergies. Dennis' mother had been told that he would be a dependent adult, that there was nothing that could be done for him. In hid thirteenth year he gained but two pounds and was severely emaciated. His diet had been so restricted that his teeth had only two points of bite and and were very irregular and porrly formed. He was quite cooperative with his diet, since the results of violation were so dramtic and rapid.

After verifying that severe food allergies continued to afflict Dennis, and having discovered no foods which did not provoke a severe skin reaction, we placed him on a hypodesensitization routine. He was also moved in with a staff family with only one other foster child, a nonverbal girl, and four natural siblings. Dennis was given freshly juiced organically raised vegetables in small quanities to build up his vitamin and mineral balance, and slowly to decondition his fear of eating. He was also given vitamin supplements specially prepared to avoid allergens.

In six weeks, we began feeding small amounts of normal foods on a rotary basis. No food was repeated more than once a week.

By December we were prepared to discharge Dennis, who was able to visit his family for Christmas. We retained him until May to complete remedial education and to follow up preparations for orthodontal reconstruction.

During the spring, Dennis developed upper-respiratory-tract(UTR) symptoms, sniffles, and sinusitis. Placing a highly efficient air filter in his bedroom relieved the symptoms. When the filters were removed without his knowledge, the symptoms returned. Subsequent use of the filter fully reduced the URT symptoms.

Dennis' shift of allergies from one system of the body to another was not unusual. First his skin was affected, then his gastrointestinal tract and brain, and then the URT. It has long been noted that schizophrenics almost never suffer URT symptoms, until they are cured or in remission. It would seem that strong symptoms in one body system tend to prevent symptoms in another. Since the brain is a large and sensitive organ, its immunity from allergic reactions would be remarkable. This is particularly true since we know that both toxins and allergic reactions can cause a great increase in intracranial pressure.13 Cerebroasthenia, or brain exhaustion, caused by infection, trauma, toxin, malnutrition, stress, and allergy, is well established as a source of deranged learning and behavior.14

Assessing these children, we find there is a high correlation between severity of symptoms and the physical traits reported by Binkley, Tintera, Waldrop, and Green Valley. When evaluating adult control groups, we find that about 75 per cent who report five or more of the physical traits have a serious systemic disorder-asthma, diabetes, atherosclerosis, hypothyroidism, etc. When we evaluate the remaining 25 per cent, we find that they often do not see physicians regularly but do have symptoms; and many of them are obese. We regard 10 per cent overweight, as a systemic disorder. Most physicians agree with us.

It is quite clear that learning disabilities, behavior disorders, and emotional disturbances are not isolated entities, but exist in a complex matrix with metabolic efficency of the body an the occurance of systemic disease.

## ASSESSING THE CHILD

If a child displays the following attributes, we can be pretty certain we will also see a child who is hyperkinetic, immature, and showing the signs of minimal brain dysfunction:

- fair-haired (much fairer than parent),
- fine, light hair which drifts or stands out,
- "orientalish" pouches over his eyes,
- frequent bags, or shiners, or dark rings under the eyes,
- irregular teeth, or missing, or extra teeth,
- a high-steepled palate,

- index finger is longer than his ring finger,
- only one line across his palm (one that is either straight across or stops, and does not curve up between the index and middle finger),
- a big gap between his great and second toes ( and the third toe is as long as the second or longer).

Say he is eight years old, and has difficulty walking a straight line, especially tip-toe, or on his heels, or backwards. He cannot stand still with his eyes closed and hold his hands straight out, palms flat, but tends to raise them up or lurch. If we ask him to hold his hands out and copy us while we match our right thumb to each of the fingers, he will likely have to mirror movements in his left hand--even if we bring his attention to the fact that we are not moving index finger with his index finger while alternately touching his nose. Often he will report only one finger touching him when we are touching two places on his back, and will have difficulty "reading" a letter we draw firmly on his back with our finger. He will almost certainly have reading problems. (hyperkinetic Checklists for parents and teachers are on pages .)

This child will almost certainly have perceptual problems. On a test of reaction time he will probably be deviantly fast or progressively slower. If he is fast, he will become faster as he becomes more tired, or the longer we test. He will have many false starts. If asked to press a button for a rose light but not for a red, he will rapidly be unable to do the task properly. If we increase the rate and shorten the length of the signals, he will have difficulty. If we ask him to press a bulb strongly for the rose light, and weakly for the red, he will homogenize the presses as the task is made more difficult. the same will occur for a red light/green light, or for a long-tone/short-tone signals. If he is a slow responder he will soon not respond at all.

This boy will almost certainly be an allergic child; his glucose metabolism very likely will be deviant; and he will have about a 25 per cent chance of having a deviant protein, fat, insulin or thyroid metabolism. He will almost certainly spill no ascorbic acid in his urine, regardless of his diet; and he will very likely have metabolites of amino acids or enzymes in his urine which reflect dependencies and inefficient metabolism. If he has evry one of these traits, symptoms, signs and deficiencies, we may see a very sick child indeed who has been diagnosed as schizophrenic, autistic, or psychopathic; but, in some cases, he mase simply be regarded as a head-strong boy, difficult to discipline, who just doesn't like school. "But he is really bright, and so good with his hands, and just charming when he wants to be and a terrific athlete." Or, "He never gives us any trouble, but he can be so stubborn, and he just can't stand school, they just don't understand him."

It is almost certain his mother has been told:

- there is nothing wrong with him;
- boys are slower than girls;
- he will outgrow it;
- you are just overanxious and making him worse; or

- he is extremely emotionally ill, and you must have the whole family in for regular psychotherapy

These comments will have been made despite the fact that other children in the family are quite competent, well-behaved, excellent scholars. The response to this is, "You are scapegoating this child." The assumption that parents, particularly mothers, are incompetent and overanxious appears to be thoughly trained into all too many doctors in their first year of schooling.

It has been well established that the mothers of children with severe crippling disease, diseases with high rates of mortality risk (osteoporosis, tuberculosis, diabetes, asthma) and other severe chronic diseases behave very much like the mothers of schizophrenics and other emotionally ill children. the child disturbs the family. Removal of the child from the family often followed by a dramatic improvement in the relations of the whole family. The terrible reality of severe diseases and strong behaviors cannot be ignored even by superparents.

**PSYCHIC ENERGIZERS**

Frenquently such children respond to psychic energizers. They almost never respond to barbiturates or tranquilizers, although these are often prescribed.

One three year old was seen by me at his parent's home. Henry was extremely fair, had epicanthal folds, his index finger was longer than his ring finger, his teeth were somewhat irregular, his third toe was longer than the second toe. he had not slept a full night in his life, was extremely hyperactive, could pull himself from the crib at age ten months, ran at eleven months, and went frequently into paroxysms of rage and terror. His mother was fatigued but very patient. his one-year-old sister was a model of cuddly sweetness and security.

At my suggestion, his parents requested the pediatrician to attempt Dexedrine or Ritalin. he would not, saying these are dangerous drugs, even though he had the boy on phenobarbitol-which made his behavior worse. (Phenobarbitol is a sedative or hypnotic. The child is anesthetized, and the brain does not go through the normal ninety-minute cycle when barbiturates and other "sleeping pills" are used. Dream-time and the deepest stages of sleep are surpressed; therefore, the child is not rested. A similar situation occurs when adults drink too much, "sleep" suddenly, and are exhausted the next day. Unconsciousness is not sleep.) The parents persisted in seeking a physician who does his homework and found a doctor who prescribed Dexedrine (dextrophetamine). The boy's behaviour normalized. In about six months Dexedrine lost its effectiveness and Ritalin (methylphenidate) was prescribed. Henry remained on Ritalin until his seventh year. he is a precocious youngster, an excellent reader and chess player since his fourth year. He has mild allergies, obviously with central-
nervous-system involvement, a pre-diabetic glucose curve, and now can be maintained on nutritional supplements only. He does regress to hyperkinetic behavior or rages when

extemely fatigued or frustrated. This case tends to support the cerebroasthenic theory of hyperkinesis.

**Other Biological Disorders**

It is important that parents not stop working on the problem if symtoms are relieved by Ritalin, Deaner, Dexedrine, or other energizers. All such children should be worked up for allergies, should have sugar taken as thoughly out of their lives as possible, and should be evaluated for thyroid imbalance. As they reach adolescence their fat and insulin metabolism should be evaluated. their urine should be tested at least twice a year, particularly after loading the night before with a rich meal high in sweets. If sugar or acetone is produced, a physician should order a study of blood and glucose and insulin.

Let me emphasize that many children have been sent to us after years of "medical" treatment during which diabetes has been missed. This is outrageous, but not uncommon. Far too many psychiatrists and psychiatric hospitals do not insure that their patients be treated by primary care physicians.
(See Biochemical Checklist.)

**Frequent Disorders**

About 25 per cent of our students demonstrate very unusual fat metabolism. No one who has followed the autopsy reports from korea and Viet Nam wars or from auto accidents should be surprised. Fatty deterioration and blockage of the arteries and heart has been found to a surprising degree in young people. In a significant number of our students the ratio of phospholipids to cholestral is quite high (norm: 1.0 to 1.2; our exceptions as high as 3.0). These fats are lost through toxic or allergic reations in the central nervous system since the two primary phospholipids are constituents of the nervous system only. Other students show clear evidence of genetic predisposition to the various types of atherosclerosis and diabetes.

About 15 per cent of our students demonstrate hypothyroidism. The chronic low production of thyroid is often a factor in mental illness. Full-blown symptoms of the cretin condition, or myxedemic madness, need not be present. Low normal or low thyroid findings in individuals with learning behavior, and emotional symptoms, particularly those with pallor but no anemia, lethargy, edema or puffiness, and poor attention indicates to our physicians that thyroid supplement should be tried.

Evidence of innefficient absorption is clear in more than half of our students. Parasites cannot be ruled out in children from middle- or upper-socioeconomic backgrounds. This is particularly true for adolescents-in whom they are seldom sought. Worms are frequently found in adolescents-in whom they are seldom sought. Worms are frequently found in adolescents who have adopted the hippy lifestyle.

Most of our students demonstrate some degree of vitamin deficiency or dependency. All learning-disabled children are under stress. Al stress accelerates the need for nutriments. All stress decreases efficiency of absorption and metabolism.

Bernard Rimland, MD, reported a survey of 1591 emotionally ill children treated by drugs and found 27.7 per cent helped, but 26.7 made worse. The best drug Mellaril, helped 36.4 per cent and made 19.9 per cent worse. In this group he found 191 children who had been treated with high doses of vitamins; 66.5 per cent were improved and only 3.7 were made worse by vitamin therapy.15

Vitamin B-12 and folate anemias are surprisingly common among our children, and our consultant staff find that the frequency of these deficiencies among their adult patients is even higher.

Many of our adolescents produce insufficient growth- and sex-hormones. These hormones have multiple functions and must be balanced if maximum restoration is to be enjoyed.

**METAL METABOLISM**

A very large number of our children have a high value of lead in their tissues, even though our norms are adjusted by recent studies of human hair from 1875 to 1925, in which lead values were ten times those of contemporary hair. Blood and urine tests are not adequate measures. Lead can be stored in fat and tissues to be released later. Often a child will present symptoms during periods of heat or strong physical exercise, or on drug treatment for some other disease. Some drugs, heat, exercise, or weight loss will cause fatty tissue to be stored lead, causing irregular appearance of symptoms. We believe a tissue biopsy is important. Fortunately, the literature indicates that hair is an adequate material for analysis.

Our hair analyses have been split among three laboratories, and we are quite satisfied that our results are reliable. our studies now involve washing and digesting hair at our own lab and sending split samples to two or three laboratories to be certain of the values determined.

Our data indicate that manganese is almost always deficient (less than 0.5 parts per million), as is potassium and sodium. These findings are consistant with a state of chronic toxity, strong allergic reactions, and stress.

Magnesium, iron and zinc are frequently low. Calcium and copper are frequently very high. We are adding a number of other metals to our assay as our information becomes more complete.

It is apparent that the child with allergies, food intolerances, and a significant number of indicative physical traits, is hypersensistive to metal and other toxins, and reacts at a lower threshold than does the normal child.

These metal imbalances can cause a wide range of effects. Work at the Flowers Analytic Laboratory in Altamonte Springs, Florida, has guided nutrition for racing horses for about twenty years. Zinc is essential for male fertility, as manganese is for female. Flowers has been able to increase foal viability, health of the mother, and nearly double the season of stallionsby adjusting trace ineral intake. Zinc deficiency is the cause of stretch marks suffered by rapidly growing adolescents, atheletes in a body-building program, and pregnant or nursing mothers. Zinc supplementation prevents these stretch marks.

## TOXIC METALS

The toxic metals have received wide publicity. It should be noted that lead, by interfering with the heme ring, inhibits the production of porphyrin and produces porphyria. Many will remember reading some years ago that two medical historians had concluded that King George III of England "was not mentally ill," but had prophyria. These reports underline the strange fact that as soon as we find what causes a mental derangement, it leaves psychiatry and becomes a part of medicine. Lead, mercury, cadmium, and other heavy metals cause a wide range of symtpoms and may mimic many disorders. like syphillis, diabetes, and allergies, metal toxins require careful medical detection.

In addition, the toxic chemicals such as DDT and other saturated hydrocarbons interfere with adenosine-tri-phosphate (ATP) metabolism and can cause a wide range of symptoms. There is unfortunately no treatment for these poisonings other than sound nutrition support and reduction of stress. Metal poisons respond to chelated calcium and penicillamine among other treatments, all of which have a high risk potenntial.

There is suggestive evidence that ascorbic acid can reduce heavy metals not stored in fat, Ascorbic acid is used in food chemistry as a chelating agent to sequestrate metals so that they do not precipatate as whitishstrings in canned foods.

The need for exceptionally highvitamin supplementation in our hypersensistivechildren is reinforced by study of many potential hazards.

## INTOLERANCES AND INBORN ERRORS

One of every twenty children sent to us have a history of celiac disease or are diagnosed as victims of sprue (the adult equivalent). Sprue and celiac disease are characterized by an inability to process gluten. Such victims most avoid wheat, rye and oats. Frequently, these children have been allowed to return to wheat as they emerge from the baby years; and, when symptomsdevelop in early adolescence, the wheat problem is ignored. the literature indicates that this data is based on very small samples. In any event. wheat intolerance and wheat allergy seem very important causes of derangement in our populations. Avoidance of wheat, rye, and oats is often accompanied by immediate improvement.

Whenever foul, bulky, or frothy stools, followed by diarrhea, are seen, a wheat intolerance should be suspected. Alternating constipation with sudden loose movements should suggest food allergies in general.

Another inborn genetic-error disease which we see with greater frequency than the literature would indicate is galactosemia. Galactose is a milk suguar, also known as "brain sugar," since it primarily occurs in the brain. Some individuals cannot break it down (it is essentially a pair of bound glucose molecules and forms the phospholipid cerebroside); and it forms a very insoluble alcohol which accumulates with very toxic affect. It is likely that all individuals with poor glucose metabolism have a higher risk for galactosemia poisoning, even though the classic disease is due to lack of the enzyme P-galactose-uridyltransferase.

Milk intolerance is likely due to an inability to produce lactase, the enzyme which metabolizes milk sugar (lactose). Caucasians are the only race in which the majority of adults can efficiently digest milk-fewer than one in six adults in other races can digest milk efficiently. the individual may be able to tolerate milk; but its by-products will be toxic and will cause fatigue, poor development, and learning problems, as well as more serious reactions.

Milk allergy is also prevalent in our Green Valley population, suggesting that there may be a high incidence of milk allergy in the wider populations of special children. There is a great deal of evidence that pasteurization or irradiation of milk reduces its nutritional value. For example, cultures of lactobacillicus or lactobacillicus bulgaris (the bacillious usually used for ypgurt) thrive much more vigorously on raw than pasteurized milk. Parents of special children should suspect milk and remove it from the diet for long trial periods.

Corn is frequent allergen. The tryptophan in corn is inaccessible for human metabolism. It is possible that, in digestion of the tryptophan in corn, its usual structure causes it to be reacted to by a hypersensistive individual as a foreign protein or virus, thus triggering massive allergic reactions. Corn should be highly suspect in our work with special children.

there are several hundred inborn genetic errors of metabolism and disorders of metabolism. It is important to note that even serious diseases like celiac and galactosemia, do have a distribution of symtoms, may appear in mild or subclinical form, or even occur in individuals without any mental symptoms at all. Differentiatiating among intolerances, inborn genetic errors, and allergies is frequently difficult; but simple procedures may detect offending foods without elaborate lab procedures. Without finding the precise cause we can eliminate the dangerous food.

It is instructive to talk with retired doctors and learn that the old GP's first line of defense with cranky, colicky, overactive or listless children was to eliminate wheat, milk and corn. Dr. Sanberg's findings come as no surprise to these physicians.

## FOOD DYES AND FLAVORINGS

It has now been conclusively proven by Benjamin Feingold, MD, of the Department of Allergy of the Kaiser Foundation Hospital in San Francisco that artificial food dyes and flavors are responsible for much hyperkinesis in children. It is almost certain that the same substances will cause other disabilities.16

Food dyes and colorings, convenience foods, food additives of all kinds, as well as all artificial flavors, should be prime suspects when a child has learning disabilities and other problems. Dr. Feingold has demonstrated a number of cases in which the disorder is completely absent when the diet strictly avoids all such additives, and reappears for 24 to 48 hours with just a tiny amount of food color or flavoring.

Eliminating these substances should be the first act in a program of biological rehabilitation for learning-disables children.

Dr. Feingold's work was inspired by the pioneer work of Stephen D. Lockey, MD, who was the 1973 recipient of the Jonathan Forman Medal for exceptional contributions to the field of ecologic health.

Lockey reported on a case of bronchial asthma in which Decadron caused severe generalized pruritus, itching of the tongue and uvula, and generalized urticaria.17 When the patient was given the same drug without the food dye (Tartrazine) he had no ill effects. Another patient developed a severe generalized reaction to Paracortol, but when given Paracort, the same drug (prednisone) without Tartrazine, the patient had no ill effects. Another patient reacted to Deronil with generalized urticaria and vomiting associated with a severe headache.

Each of these patients reacted when tested with a 1:1000 dilution of Tartrazine placed under the tongue.

Lockey has several excellent papers on the effects of salicylates and other hidden substances in food and drugs.15

Lists of prepared foods, drugs, lotions, and other substances, as well as foods in which salicylates naturally occur may be obtained from Dr. Lockey.*

*Stephen D. Lockey, MD, 60 North West End Avenue, Lancaster, Pennsylvania 17603.

## SCREENING FOR ALLERGIES

Parents of special children often have difficulty finding a physician for their children. The bias of most physicians is that the problems of learning behavor are psychogenic. Most simply do not want to work with disturbing kids. Frequently, there simply isn't a doctor--especially if you are Black, Puerto Rican, Chicano, Amerind, or live in the country or a slum. far too often doctors do not keep up with the literature and may blithely deny the

importance of allergies, toxins, or metabolic disorders as factors in emotional and developmental problems.

Even when parents find a compassionate and through doctor, the process of locating allergies is difficult. Skin tests are not too reliable for foods. Other methods are still unproven (or their reliability varies highly from technician to technician). The doctor is forced to rely on the parent. This may be more be one reason why, in our experience, allergists listen to parents more readily than do some other specialists.

**FOOD DIARY**

One of the least difficult methods of detecting allergies and intolerances is to keep a diary of both foods and behaviors. Not all allergies are immediately evident and may take hours or days to show up. In manycases, however, the response will be rather quick. My own grandfather is so allergic to shrimp that one bite provokes projectile vomiting.

Many foods will be quite safe by themselves or in some combinations, but will provoke reactions in combination with other foods. All parents o special child should maintain careful diaries for dietary and allergy reasons, and to help the parent observe the child's behavior objectively. Often even severe llergic reactions can be reduced y changing parent and teacher reactions. A recent report in BEHAVIOR THERAPY demonstrated that a child having severe asthma attacks quickly reduced the severity and frquency of attacks.19 His parents were shown how they responded to the attacks much more vividly and concernedly than to healthy behavior. The child was biologically ill, and that illness had onditioned intelligent, concerned parents to a form of superstitious behavior that made the child more ill.

Careful records, objectifying what actually happens, are the basis of any effective therapy.

Good pediatricians recommend introducing one new food to a baby at a time, keeping records of any reactions, and not repeating any food for several days. This enables us to discover any sensitivities very early. This method can be used when the child is older as well.

**ELIMINATION DIET**

Remove one food from the diet, beginning with the most likely offenders. Keep the food out of the diet for a week. Then it is put back into the diet for a week and removed again. This is a slow, but certain method. Groups of food can be eliminated. If there is no relief from removing the group, then remove another group. If there is relief, the foods in the group can be returned to the diet one by one and the offenders detected.

## ROTARY DIET

If a child is allergic, it is always a good idea to organize the diet so that foods are rotated. If eggs are served Monday, they should not be served again unril Thursday. This method can also detect allergies, though difficult cases will require complete elimination for a longer period.

## PROVOCATION

On a Saturday or other free day, breakfast can be made up of only one food. Corn fakes, corn meal mush, corn fritters, corn muffins, corn syrup, etc. No condiments except salt. If there is no reations, another food can be tried at noon, and another in the early evening. This requires a cooperative child, ofcourse. We find that kids are often excited by the idea that foods may be causing their problems, and many will cooperate. Milk allergy or intolerance can often quickly be determined by gulping down two large glasses of cold milk on an empty stomach.

## FASTING

Short fasts, with nothing but distilled or pure spring water, can be carried out for one, two, or three days. With elementary-age children only short periods should be used. In our setting was have gone as long as 21 days with young adults under strict medical supervision. Often symptoms will completely disappear. Then small amounts of single foods can provoke a direct reponse quickly. For adults, fasting can be carried out for much longer periods of time, so long as the return to eating is done first by liquids then with easily digested foods in small amounts. William Philpott routinely fasts all of his psychiatric admissions for five days and reports that he achieves better control of symptoms than with major tranquilizers.20

## DROP TEST

A mild technique that has worked well is to use dilutions of broth or solutions made from food (or other substances, e.g., cigarettes, coffee, tea). Two drops (0.10 cc) are placed under the tongue and held there without swallowing until absorbed. The solutions can be made by soaking the suspected raw food (mashed or blended) or directly from broth. This is used as the concenrate.

This is the diluted as follows:
1:100, 1:500, 1:3000, 1:12,000
1:60,000, 1:300,000.

Some workers make higher dilutions:

(1:1000,000, 1:2,000,000, 1:10,000,000,
1:50,000,000, 1:250,000,000).

The 1:100 dilution is given first. Any unusual reaction is recorded (flushing, itching, sniffles, any behavior different thing from the child's condition before the drop was given). The symptom can often be relieved by using one of the higher dilutions working back from 1:75,000.

If there is no reaction in ten minutes, another food can be tested, or the next higher dilution used. We prefer to test a large number of foods and substances at 1:100. In this way we can rapidly screen for the most reactive foods.

Physicians and researchers may obtain these concentrates from pharmaceutical houses. The water solution does not pick up the fats and oils and therefore is not as thorough a method as one that uses a solvent in which fats and oils will dissolve. However, the technique is adequate for most situations and is quite safe. There is no report of dangerous reactions from this method. It is not "medical" sine you are doing nothing more than putting into the mouth a diltuted soup made from foods normally eaten. Klotz reported a study in which only 1 to 16 positive reactions was false in a triple-blind evaluation of students at Green Valley.21

One of our staff members developed severe hives from a drop of 1:500,000 cigarette, and another had an immediate facial edema and breathing difficulty. Both were heavy smokers.

The fact that you do not have strong reactions to cigarettes or to foods does not mean you are not allergic to them. The reaction may be maked by the tolerance the body has built up. In fact, Albert Rowe and Albert Rowe Jr., call the food allergy a "food addiction."22 The child may eat a great deal of the food; it may be his favorite food; and it may be a food that makes hi feel better. Anything to whic the allergy-prone or hypersensitive individual is exposed frequently is suspect. Any favorite food and any foods used for "pick-me-ups" should be suspect. Foods which are not eaten or not liked can be ignored.

This food drop test is not perfect. reactions to oils and fats will be missed, and false negatives will be recorded, becasue the reactions will be subjective or slight. Some observers will over react and find false positive reactions. However, after screening with this method, deliberate food provocation can be tried by heavy feeding of the suspected food.

the parent may feed a suspected food in large quantities without any seasoning other than salt. This is best done on an empty stomach, and usually the weekend breakfast is the easiest time. For example, corn flakes, corn meal mush, corn fritters could be fed. Milk and cottage cheese and othing else is another test. The more aged cheeses should be tested separately.

**PULSE TEST**

Many parents are familiar with Dr. Coca's Pulse Test. Unfortunately, most allergists we respect have not been able to repeat Dr. Coca's findings. We suspect that pulse reactions

are highly individual. We do take pulse, temperture, skin resistance, and blood pressure, and have noted consistent results only with temperature and skin resistance. these devices are not reasonable for home use. The consistency of these reactions does indicate that the central nervous system is involved in all allergic responses. E. W. Kailin has also reported changes in electrical potential of the muscles on presentation of allergens.23 If we do find consistent large changes in pulse and blood pressure after eating or drop-testing a food, we regard it as suggestive and explore further.

**SNIFF TEST**

Many children are allergic to aromatics which abound in our society. Hair spray is a frequent offender ( and is used by some truly unhappy children as a drug for abuse), as are deodorants, perfumes, lotions, fumes from the gas stove or heater (both the raw gas and the products of burning), gasoline, terpenes (pine needles, wood, turpentine), and many others. Direct exposure to the smell will frequently produce results. Parents should be suspicious not only of an oder which causes symptoms, but one which makes the person feel better.

The initial response to an allergen, ingested or inhaled, may be to feel better.

**PHYSICIAN'S TEST**

The medical doctor has available several forms of skin tests, radioactive immune tests, cytoxic tests (results of which vary widely from technician to technician), and other methods. Those who specialize in failed allergy patients, however, rely heavily on hard detective work using the simple methods above: food diaries, elimination, rotary diet, provocation, fasting, and the sniff test or other means of exposure in natural ways. these are all methods which can be used at home, and any good physician will enlist the aid of his patients and their parents in the detective work that is necessary.

**DEALING WITH ALLERGIES AND TOXINS ELIMINATIONS**

In celiac, or galactosemia disease, the offending food must be eliminated with absolute fanaticism or no improvement is possible. In milder cases it is often hard to convince parents that a similar level of fanaticism is needed. The ordinary American lives in a jungle of hard sell for sugar corn, milk, wheat, peanut and chocolate products-all prime allegens. Corn is incredibly ubiquitous-found in everything from canned soups to band-aids and paper milk boxes.

If the child is chemically sensitive, life can become a true hell. We know many families who have been required to build their own home, with close nit-picking supervision of the contractor to eliminate the offending chemicals. We have seen many cases of sensitivities to plastics which create extremely difficult problems. It is impossible to spend life in a Mason Jar. Therefore, we believe the whole range of treatments is important, as are vigorous efforts to eliminate the allergens from the family's ecology.

Many parents will simply be unable or unwilling to go about the difficult job of eliminating allergens unless the symptoms are very severe.

**IMPROVING ABSORPTION**

It is likely that some form of malabsorption is present in all food allergies and intolerances. Sandberg and Collupp's separate studies certainly suggest this.24 Many clinicians support our Green Valley finding that most special children do not efficiently digest food. Food intolerances and inborn genetic errors, as well as diets very heavy in certain foods (especially cerals) also cause metbolic problems and malabsorption. If the gut cannot absorb food effeciently, the child will be malnourished.

the evidence seems clear that almost all hyperkenetic, learning-disabled, behaviorally disordered, and emotionally ill individuals will benefit from improved nutrients. They need unusual nutritional support. It is quite clear that overactive immune systems or allergic reactions accelerate the metabolism of all nutrients.

At the very minimum, a balanced vitamin-mineral preparation is essential. this preparation should be based on the most current research. Most widely advertised vitamin preparations are obsolete and ineffecient. Water soluable vitamins are largely out of the body in four hours and need to be replaced. Vitamins should be taken with or before meals to maximize their value.*

*The most readily available preparation based on current research is G-154 Nutrins, sold be General Nutrition Corporation, 418 Wood Street, Pittsburgh, Pennsylvania 15222.

This formula is recommended by Roger Williams.25 Williams is perhaps the world's leading biochemist and nutritionist. He is the discoverer of Vitamin B-5 or pantothenic acid. His formula is based on the ratio of vitamins and minerals in the healthy human. He recommends two of these tablets each day for general nutritional insurance for the normal healthy individual.

In our program* vitamins and mineral supplements, in addition to the general formula, are based on laboratory tests; however, in ordinary clinical laboratories, such tests are unreliable (oftennot available at all). Most of the biochemists who consult for our program believe that supplements can be given on a trial basis. With the exception of Vitamins A and D, no report of toxic effect of vitamins exists in the literature.

Roger Williams, Linus Pauling, The American Schizophrenia Association, The Institute for Child Development Research, and our own center constantly monitor the nutritional and other literature. we at Green Valley have located no reports in the literature of toxicity of vitamins other than A and D and substances in which they occur.

Ascorbic acid seems of particul use in hypersensitivity for a number of reasons. It maintains intracellular substances such as connective tissue, osteoid tissue of the bones, and dentin of the teeth. It is involved in the metabolism of phenylalanine, tyrosine, and

dopa. It protects folic acid reductase which converts folic acid to tolinic acid, and enables the release of free folic acid from the conjugates of the acid in food. It facilitates absorption of iron from food. It improves the efficiency of white cells and is an antioxidant and binds free radicals. It reduces cholestrol.

We adjust the dose of ascorbic acid by means of determining at what level it is spilled in the urine. A simple test available to any parent is to prepare a 10 per cent solution of silver nitrate (from crystals available at the chemists' and photo supply houses). One cc of solution is added to one cc of urine, and a precipate is formed. If the precipate is black, this beautiful, for it means that ascorbic acid is present. If it is gray, silver, or white, there is no ascorbic acid. In our center we use Van der Kamp method; however, this requires a physician's supervision. We have gone as high as 36 grams of ascorbic acid in divided doses before seeing spillage. A number of physicians are using ascorbic acid by intravenous injection and reach higher levels on an adjusted basis (injected ascorbic acid is regarded as twice as potent as by mouth).

Recent studies in Canada and England have clearly demonstrated that Pauling's hypothesis is correct, and that high intake of ascorbic acid does reduce the incidence of common cold.26 These studies are very impressive, since they were undertaken by physicians on record as highly opposed to Pauling's conclusions.

We regard one gram of ascorbic acid, taken at every meal, as a minimum dose for special children. most of our children still do not spill on this dose level six weeks after admission.

The evidence for d-alpha tocopherol, Vitamin E, is not clear as that for C; however, we now regard 200 International Units at each meal increased by 100 IU for each decade of life past the first as a minimal dose for these hypersensitive individuals. In other words, if you are thirty, you should take a minimum of 400 IU at each meal.

the ratio of B vitamins is very important. In our severe cases and in acute situations the adolescent is given:

100 mg thiamin (B-1)
60 mg riboflavin (B-2)
1000 mg niacin (B-3)
1000 mg calcium pantothenate (B-5)
90 mg pyridoxine (B-6)

In additon all students showing any evidence of hypochlorhydria or low hydrochloric acid in the stomach are given B-12 shots three times a week. Several of our doctors prefer to go back to the liver-extract injections. The evidence for this is only the subjective reports of our patients. These doctors tend to take their patient's symptoms and feelings seriously. Vitamin B-12b is preferred to B-12 (hydroxycobalamine rather than cyanocobalamine). For mild cases the B-12 in G-154 Nutrins is adequate. In our program a special compound of the Williams' forula is made up which included folic acid (only

available by prescription). There is evidence that high vitamin C supplements will supply this need if the diet is adequate.

Students with alcohol or drug problems are carefully studied and also recieve two grams of glutamin (not glutamic acid) in their food.* Williams and others have demonstrated that glutamine is of great help in treating alcoholism nd other toxicities.

Some parents report that they or their children are allergic to vitamins. This does not seem likely if the product is pure.** These products are seldon pure and almost always have corn starch as an excipient (it's organic). The amounts of vitamins needed by hypersensistive individuals are too large to afford the use of organic products unless one is extremely wealthy. When Abram Hoffer and Humphrey Osmond made the first double-blind study in psychiatry, an evaluation of niacin with schizophrenics, the cost of the natural niacin was $40.00 per gram. This was before it had been synthesized.27

**LACTOBACILLICUS ACIDOPHILUS**

An excellent source of vitamins, improved absorption and intestinal health, as well as a means of reducing growth of unwanted bacteria is the use of lactobacillicus acidophilus milk, yogurt, or tablets. Commercial yogurt is made with lactobacillicus bulgaris, which is not a natural denizen of the human gut. It does not implant and thrive in the intestines. Lactobacillicus acidophilus will thrive in most humans, particularly if a diet with adequate amounts of fresh fruits, vegtables, and other complex carbohydrates is available. A strong meat diet will cause the natural flora of the stomach to die out; and constipation, malabsorption, and infections such as herpes simplex (cold sores) are often the result.

L. Rettger, M. Levy, and their associates reported that lactobacillicus acidophilus milk was effective in about 75 percent of cases of constipation with complications of biliary symptoms, mucous colitis, and ulcerative colitis.28 They found that ordinary refrigeration at 40 degrees Farenheit killed off most of the flora, and that retention of 50 degrees was more favorable. Commercial yogurts are not useful due to the refrigeration they undergoe and the use of the wrong type of flora. Weekes reported that use of lactobacillicus acidophilus cured cold sores in 95 percent of his patuients.29 It is well established that the natural flora of the stomach produce B vitamins, vitamin K (antihemorrhagic), and reduce the numbers of other bacteria.

Use of lactobacillicus acidophilus improves absorption as measured by the content and formation of stools.

All of our students are regularly given acidophilus tablets before breakfast every day. In addition, acidolphilus yogart is freshly cultured in our kitchens for regular use.

**PROTEIN**

A great deal of malabsorption seems caused by poor protein balance. Unless the limiting amino acids are present in appropriate amounts, other amino acids will be metabolized as

if they were carbohydrates. We deliver at least one tablet per meal of an amino acid preparation.* We have observed that many individuals will mild food intolerance and obvious poor absorption immediately have improved stools with good absorption indicated by analysis after this balanced amino acid supplement is given.

On of our rules for "health food" is that it ought to be tasty and attractive. Food that tastes like cardboard is not healthy, regardless of its content.**

*Ag/Pro, made by Miller Pharmacal (sold only through drug and health stores, but no prescription is required).

**We also made use of Multi Purpose Food, sold by the nonprofit Food for the Millions Foundation, Box 1666, Santa Monica, California 90406. This is a balanced protein food, enriched with vitamins and minerals, which can be blended into any food.

**FAT**

We do not use any heated fat. We prepare butter by allowing it to melt at room temperature and mixing half and half with safflower or corn oil. We use corn or other vegetable ouil for cooking ans as a condiment. Olive oil is not harmful but does not have the metabolic effect of the unsaturated linoleic acid fats. Safflower, corn, and soy or cottonseed are the best of these linoleic acids oils. You must be sure that the oils are prepared by cold pressing and not by milling or chemical means. Frequently oils are separated by the use of ethyl glycol (antifreeze); and anyone with sensitives to petrochemicals will react. Moreover, we have no idea what these chemicals will do on a long term basis to humans. Milling or heating oxydizes or hydrogenates the oils, and you might as well buy a cheap or more tasty oil as one which has been processed in these ways.

Fat is utilized buy the body as fuel. Carbohydrates in surplus are stored as fats. Of course, without excercise, and particularly exercise before breakfast, all foods are stored as fat, including balanced proteins. A heavy balanced protein meal at night will be stored as fat. A daily budget of exercise which causes sweat and hatrd breathing is essential to good health. At our school we require the staff, as well as students, to take physical education every morning before breakfast.

Roger Willi8ams, J. Yudkin, and A. Fleischman have separately concluded that external sources of cholestral are not the villain in heart disease.30 Genetic factors, sugar and carbohydrates, lack of exercise, and a lack of an essential phospholipid, lecithin, seem to be much more important. Yudkin points out that in Malta, where there is low fat intake, no public and little private transportation on a mountainous island, but a large sugar intake, the rate of heart disease is as high as in areas with a high fat and sugar intake.

We attempt to reduce the use of processes carbohydrates and sugar as much as possible. We also supplement with lecithin, 500 mg per meal.

## STRESS REDUCTION

Stress operates in a complex fashion. Calhaun's "horrible mousery" was an eight-foot cube habitat in which four parts of pairs of mice were allowed to breed without food limitations. After 2o months, not one newborn mouse survived. In an environment adequate for 620 mice, 2200 were produced in 19 months. Even after mortality reduced the populations, viability could not be restored. In two months short of five years every mouse had died. Even when the strongest of the surviving mice were removed to separate environments for a better chance, they could not produce viable offspring or survive.

Selye's study defining the General Adaptation Syndrome indicates that prolonged stress can produce profound, morbid, and mortal results in all animals--including man.

We have found that the reduction of stress tends to reduce the severity of allergic reactions. Reduction of some allergies tend to reduce them all, just as sensitization to a new allergy tends to increase general severity of responses. This is one of the reasons we do not attempt to make exhaustive studies of all potential allergies, but screen for the most likely and severe, and eliminate or treat for these.

Other stresses--malnutrition, injury, psychosocial trauma, conflict, frustration, density, noise, infection, and so on-will increase the derangement of all other defective systems, including allergies.

We find it useful to remove the hypersensitive child from the usual demands of schooling and place him in an environment as unlike those in which he has experienced failure as possible. We also try to reduce the ambiguity of inevitable stress. If there are limits we want to place on the child, we try to do so blintly, firmly, vividly, and, unambiguously. Too often authorities precede frustrating limits with kindly talks, or attempt to mask distaste in a smiling countenance. this produces a constantly ambiguous system in which the child is never clear when aversive adult transactions occur. Sweet reasonableness may create the most stress of all. Most adults remember saying when they were kids, "I wish daddy would just spank me and get it over with; I hate a 'talking to.'"

Specific techniques of stress-reduction-psychokinetics, eurythmics, relaxation training, deconditioning of fears and phobias, electrosleep, inhalation therapy, and biofeedback training--increase the general stability of the nervous system and are important tools in reducing the effect of allergies, toxins, and metabolic disorders.

Effective teaching of skills often reduce stress. One of the most intriguing findings is that almost all statistics of disabilities indicate that the inability to read associated highly with all problems-even murdering and being murdered.

Of course, the method of teaching skills is important. Far too much of what has sometimes passed for instruction is a means of increasing stress. If we observe

certainmethods of instruction, we imagine how stressing the usual make-work instruction in reading truly is, particularly for a child developmentally or personally not suited for the "it still and be quiet" model of schooling.* The stress of inappropriate demands will lock a child into cycles of cailure and exacerbate any biological disorder he may have.

**HYPODESENSITIZATION**

Allergists carry out hypodesensitization both by using injections of very dilute allergens and by food-drop method. Typically, a dilution of 1:100 will casue symptoms which are relieved by 1:15,000 or 1:75,000-some report success with dilutions as high as 1:250,000. Recall that two of our staff members had acute symptoms provoked by the 1:500,000 dilution of cigarette drops. A 1:10 (8) dilution of methylated mercury in sea water will reduce the efficiency of photosynthesis by half, so high dilutions are not chemically absurd.

One of our students, Steve, was quite disoriented, very hyperactive and compulsive, and highly perseverative. During a fast he was found to have only mild reactions to a few foods, but very strong and violent behavioral reactions to coffee, tobacco, and No-Doz. These three substances were obsessions with him and so were tested right away. After two separate five-day fasts, elimination of coffee, tobacco, and No-Doz, and three months of heavy vitamin supplementation, Steve was discharged for a happy month at home and transfer to a residential school for children who have learning disorders, but not behavior disorders. this boy had been so out of touch with reality that he would pick up a hot coffee urn with his bare hands and drink from it. He did not mind the severe scalds. He would eat cigarettes if he found a butt and no match. he would walk right through heavy traffic to get someone with a cigarette.

Fortunately most children do not react as severely as this youngster; however, amny milder reactions result from exposure to the parents' and other adults' cigarette smoke, or to other common food substances.

E.W. Kailin made an interesting study of her chemically-sensitive patients by sending organically raised carrots washed in spring water to another physician. 31 her associate placed half the carrots in plastic bags and half in glass jars. The next day these were all placed in glass jars and coded. Dr. Kailin's selected chemically-sensitive patients were able to detect which carrots had been in the plastic bags overnight at the .01 level of confidence. Some individuals are extremely hypersensitive to substances thought to be chemically inert (the plastic film is supposed
to have a vapor pressure of zero at room temperature).

Hair spray is one of the most common offenders.

We have seen a wife refuse to give up her hair spray, even though it was demonstrated to her that exposure to it caused her husband's psychosis. Here was a true example of a wife driving her husband crazy.

Hypodesensitization for chemicals is a controversial area. It surely cannot be done by home methods; and the only recourse is elimination, nutritional support, and stress-reduction.

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