The Multi-Disciplinary Treatment of Hyperactive Learning-Disabled Children

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Hyperactivity in children is a problem eliciting increasing concern from parents, educators, and members of the medical profession. In a society of fast foods, instant replays on TV, and a pill for every ill, we are distressed by a problem with a complex etiology and no proven cure. Professionals disagree with each other, and parents do not know where to turn for help.

The underlying disorder in hyperactive learning-disabled children is thought to be a problem of minimal cerebral dysfunction. Hyperactive children show more neurological abnormalities than normal children. Werry et al. (1972, p. 447) found a significantly greater number of soft neurological signs, mainly those indicative of sensorimotor incoordination, in a group of hyper-actives as compared to a group of neurotic children and a control group.

This cerebral disorder may be caused or influenced by any number of factors: heredity, brain injury, biochemical imbalance, food sensitivity, chemical environment, nutritional factors, sensory deprivation, emotional factors, and stress. This malfunctioning brain emits many signals of distress, such as hyperactivity, short attention span, incoordination, reading problems, speech, auditory, o"r visual problems, reversals, bedwetting, poor writing, spacial distortion, and others. These symptoms frequently cause and then subsequently are aggravated by psychological problems, behavioral problems, substance abuse, and school failure (Dunn, 1973, p. 4) (See Figure 1).

The child exhibiting these symptoms is a major cause of concern to his family. His behavior at home irritates parents and siblings and is the source of many conflicts. His failure to progress in school is seen as laziness, stupidity, or stubborn refusal to cooperate. His inability to play satisfactorily with neighborhood friends and his occasional acts of violence towards people or property are a source of social embarrassment, frustration, and guilt to his parents. The family of the hyperactive child is constantly in a state of stress.

Many different methods of either alleviating the cause of the problem or of treating

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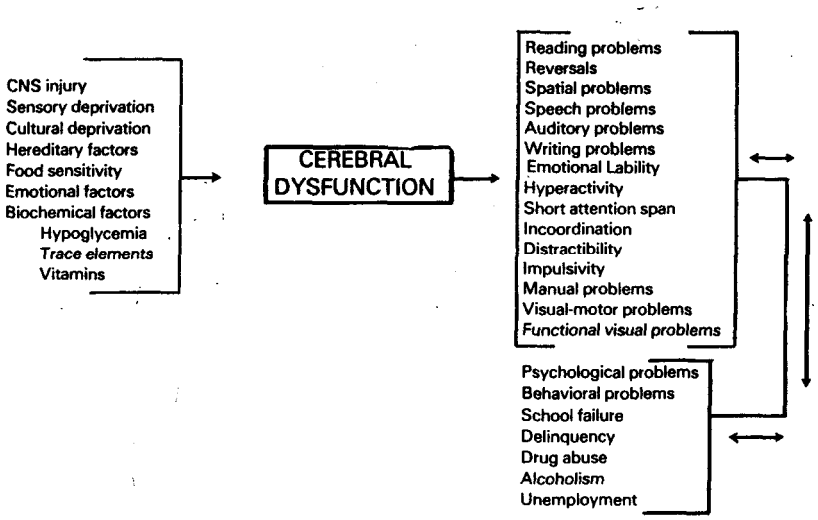
Figure 1

Hyperactive Learning-Disabled Syndrome



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the symptoms have been used by a variety of professions with varying degrees of success. These widely diverse approaches often leave a family in a state of confusion when seeking resources and an approach to follow for their hyperactive child. The purpose of this article is to review the literature on various aspects of the problem, and then to give focus to a multi-disciplinary approach which appears to be highly successful.

Heredity

Heredity has been found to play a part in the etiology of cerebral dysfunction. Stewart and Olds (1973, p. 30) found that relatives of hyperactive learning-disabled children, especially males, were more likely to have had a history of behavior problems than were the relatives of a control group. In a study of problem foster children, full siblings of the problem children were found to have a higher occurrence of signs of minimal brain dysfunction than their half-siblings. All of the siblings who had seizure-disordered fathers were hyperactive. However, of the four mothers with seizure disorders, only one had offspring with this problem (Safer, 1973, p. 183). Families with a strong history of obesity, diabetes, hypoglycemia, alcoholism, allergies, migraine, insomnia, schizophrenia, and manic-depressive psychosis are at greater risk of producing a minimal-brain-dysfunction child, usually being a blue-eyed or green-eyed boy (Smith, 1976, p.42).

A study of 81 hyperactive boys found an increased number of minor physical anomalies, as compared to non-hyperactive boys. There was a positive association between the weighted stigmata score and the activity level within the patient group. Of the parents completing the family history questionnaire, 57 percent reported minimal brain dysfunction symptoms in at least one relative. Serious prenatal or perinatal complications were reported by 32 percent of the mothers (Quinn and Rapoport, 1974, p.744). Although not all MBD children have a higher number of anomalies, it is very unusual for boys with a high anomaly score not to be hyperactive by the age of three (Yahraes,

1978, p.4). Since these anomalies can be detected at birth, they could lead to early identification of some children who are at risk for developing problem behaviors and possibly toward preventive measures.

Drug Therapy

The use of psychostimulant drugs is common in the treatment of hyperactivity. It is thought that norepinephrine, a stimulant related to adrenaline, is lacking in the ascending reticular activating system and the limbic system of MBD children. This results in defective sensori-filtering and motor-inhibitory processes. Stimulants strengthen these systems, thus improving the child's perceptions and behavior (Smith, 1976, p. 15; Silver, 1975, p. 408).

The use of these drugs is controversial. Studies do suggest that the stimulants improve a child's performance by improving or sustaining attention rather than by sedating the child. D-amphetamine (Dexedrine) and methylphenidate (Ritalin) appear to be the most effective. It was found that they decrease cognitive fluctuation and facilitate the physiological correlates of alertness. However, the appetite-depressant action of amphetamines is well documented, and there is some evidence of a depression of growth rate after long-term use. An increase in the basal level of heart rate was observed by some researchers but not by others. The long-term effects on the cardiovascular system of daily doses over an extended period of time warrant observation (Cole, 1975, p. 32). Evidence is unclear as to the addictive properties of the stimulants. Although Ritalin is in demand as a street drug, there is little indication that hyperactive children become addicted to it as a result of treatment (Cole, 1975, p. 34; Beck et al., 1975, p. 437). These drugs do not improve specific learning disabilities. They only make the child more available for learning. Other forms of therapy are still necessary (Silver, 1975, p. 408). The prognosis for drug therapy is not good. Ackerman et al. (1977, p. 580) found in a follow-up study of teenage boys that only two out of 23 hyperactives presented no problem for either home, school, or community. The use of stimulant medications had produced only transitory improvement.

Orthomolecular Medicine

Orthomolecular therapy is a highly controversial approach to the treatment of minimal brain dysfunction. The aim of this type of therapy is "to treat mental disease by providing an optimum molecular environment and by producing optimum concentrations of certain substances normally present in the human body. The optimum concentrations of these substances for a given person may be quite different from the concentrations provided by his normal diet" (Dunn, 1976, p. 372).

The Orthomolecular approach involves thorough biochemical analysis of the individual via blood, urine, and hair analysis to determine current levels of all nutrients. Where deficiencies, excesses, or imbalances are discovered, an attempt is made to correct them through a prescribed diet and often supplemental vitamins and minerals.

Williams (1971, p. 153) stated that there is only slight justification for the idea that the average diet will provide what the individual's brain cells need. All cells are continuously subject to less than perfect nutrition. Individuals' brains differ enormously, even at birth. Great care must be exercised in providing for the needs of each individual.

Hypoglycemia. Smith (1976, p. 47) stated that a breakdown in sugar metabolism, hypoglycemia, might be the cause or at least an aggravating factor in minimal brain dysfunction. A sudden drop in glucose level in the blood triggers frantic, purposeless muscular activity. Bedwetting may result from lack of sufficient energy to transmit the message of a full bladder. Anti-social behavior may result from lack of adequate energy to keep the circuits of conscience operative.

Powers (1973, p. 204) reported experience with 260 children and young adults. Treatment was based on the results of a glucose tolerance test, along with other physical and laboratory assessments. Although no

specific figures are given, consistent improvement was noted. Dunn (1974, p. 142) found that *77* percent of 144 minimal brain dysfunction children had a significant disorder in carbohydrate metabolism.

Food Allergy. It is a generally accepted fact that allergic reactions can cause eczema, asthma, hives, and other obvious symptoms. Allergy of the central nervous system is less obvious and the mechanism involved is not completely understood. As early as 1896, Gould and Pyle observed headache, convulsions, and seizures being caused by foods and odors (Speer, 1970, p. 4). Speer notes a characteristic behavior pattern especially in patients with multiple sensitivities. Called the allergic tension-fatigue syndrome, it consists of motor and sensory overactivity alternating with motor and sensory fatigue (Speer, 1970, p. 14 ff.). The mechanism is thought to be a definite allergic reaction of localized edema in nerve or other tissue. The foods most often indicated are milk, wheat, spices, eggs, chocolate, and cola (Frazier, 1974, p. 35).

Dunn (1974, p. 153) found 30 percent to 50 percent of his hyperactive patients who had hypoglycemia also had between four and ten eosinophils in their blood smear, indicative of allergy. In patients with normal glucose curves, eight of 33 had allergy history and 11 had four to ten eosinophils. In a limited study of 20 children, Kittler reported that a diet restricting known allergens improved behavior and also led to correction of abnormal electroencephalograms (Taub, 1975, p. 169).

Allergic children who also suffered from learning disabilities, hyperactivity, fatigue, incoordination, and irritability were treated by conventional allergic methods by Millman et al. (1976). They showed a marked improvement in ability to learn and to perform on intelligence tests, and reduction of hyperactivity and incoordination over a one-year study period. There were no significant changes in objective tests for neurological dysfunction, but all of the "soft neurological signs" showed improvement.

Smith (1976, p. 86) stated that the frequent association of hyperactivity and allergy is related to the reciprocal exhaustion produced in the brain and the adrenal glands. The adrenal cortex produces cortisone, which controls allergy symptoms, and also the hormones for carbohydrate metabolism. Exhaustion because of inadequate enzyme precursors, psychic stress, low blood sugar, or overload of allergens, produces a vicious cycle of stress.

Salicylate Sensitivity. Feingold has brought attention to the problem of natural and chemical salicylates. Hawley and Buckley, (1974, p. 31) found that about half of over 150 hyperactive children tested with sublingual dilutions of food dyes had a response, indicating the need for a salicylate-free diet. This compares to Feingold's claim of about 50 percent success with his diet (Feingold, 1975, p. 803). It is extremely difficult to design a reliable test of this diet, since one small infraction can produce symptoms for four days. Inadequate labeling of foods thwarts even the best of intentions. Also, many salicylate-sensitive children also have other food allergies.

The salicylate reaction is not an allergic response in the classic sense, and cannot be overcome by immunizing therapy. It is thought that salicylates, aspirin, and tartrazine have a certain effect on the prostaglandins in the body. Prostaglandins are involved in many regulatory and defensive functions in the body, among which is the metabolism of essential fatty acids (Franklin). Further research is needed in this area.

Trace Minerals. Excess amounts of heavy metals, particularly lead and copper, have been associated with hyperactivity. Dunn (1976, p. 374) found 29 out of 67 hyper-actives with hypoglycemia had a lead level in hair of 21 to 50 parts per million, and six had more than 50 parts per million. In children, anything over 20 parts per million is considered significant. In 33 hyperactives with normal glucose tolerance 13 had 21 to 50 parts per million of lead, and three had more than 50 parts per million. All had learning disabilities. De La Burde and Choate (1972) compared a group of children with proved lead exposure to similar children

without undue exposure to lead. All individuals were excluded who showed signs of neurologic abnormality or developmental lag, or disease or injury of the central nervous system. Fine-motor tests were failed almost twice as often by lead-exposed children. Failure in gross-motor category was apparent to a lesser degree. Deviations in over-all behavior ratings occurred almost three times as often in the lead-exposed children. The First Report of the Preliminary Findings of the Interagency Collaborative Group on Hyperkinesis (U.S. Senate, 1975, p. 282) stated that lead toxicity in childhood appears to produce hyperactivity, impaired learning, heightened aggressiveness, emotional instability, and deficiencies in motor coordination.

Copper has been implicated as a possible factor in hyperactivity. Fetal liver at term contains approximately seven times as much copper as adult liver. Breast milk is deficient in copper; the amount of excess copper in the infant's liver should decrease during the first six months of life. Any abnormality in copper absorption could affect the brain. It is a stimulant and could cause hyperactivity (Pfeiffer, 1975, p. 333).

In a controversial paper written in 1971, Cott claimed 26 out of 30 children whose hair was analyzed showed an abnormal balance of trace minerals (Silver, 1975, p. 413). Dunn (1973, p. 6) reported the vast majority of his learning disabled patients have a significant imbalance in the ratios of calcium, sodium, potassium, copper, zinc, magnesium, manganese, iron, and lead. A proper balance of these minerals is essential to the functioning of many enzyme systems, nerve impulse transmission, and nutrient transport mechanism. Although Dunn does not claim this is the main causative factor in hyperactivity, it must be recognized as a significant part of the total picture.

Vitamin Therapy. The use of massive doses of vitamins to treat emotional or cognitive disorders began with the treatment of schizophrenia with niacin, vitamin C, and pyridoxine. Between 1966 and 1972 Cott treated 500 children with the Orthomolecular approach. This consisted of daily doses of 1 to 2 g naicin or niacinamide, 1 to 2 g ascorbic acid, 200 to 400 mg pyridoxine, and 400 to 600 mg calcium pantothenate, varied according to the child's weight. He reported no serious side-effects from any substance used. Although no specific figures are given, he reported significant improvement in most children beginning two to six months after treatment was initiated. Younger children, ages two to eight, generally respond faster and better than older ones. Interruptions in medication resulted in a relapse into former symptoms. On resuming medication, the former level of improvement was usually attained (Cott, 1972).

Thiessen and Mills (1975) conducted a controlled study involving 24 children in the experimental group and nine matched controls. Treatment consisted of daily doses of 3 g ascorbic acid, 3 g niacinamide, 250 mg pyridoxine, and 250 mg panthothenic acid. A high-protein low-carbohydrate diet was followed in conjunction with the vitamins. Children were tested four times at three-month intervals. No significant differences between the groups in reading and spelling ability were found. However, the treatment group did show a reduction in hyperactivity, sleep disturbance, and nystagmus, as well as in some perceptual dysfunction symptoms and some basic language skills.

Dunn (1976) advocates a more conservative approach. His basic diet follows generally recognized principles and emphasizes the use of pure, wholesome foods and the avoidance of over-refined foods and chemical additives. This is supplemented with chelated vitamin-mineral prescriptions based on the results of blood, urine, and hair analysis of each individual.

Neurophysiological Retraining

Neurophysiological retraining is based on the premise that by stimulating specific sensory inputs or exercising specific motor patterns one can retrain or improve the functioning of a part of the central nervous system. Montessori held the view that movement has great importance in mental development. She asserted that if a child is prevented from using his powers of movement as soon as they are ready, the child's mental development is obstructed (Montessori,

1967, p. 142). Dunn (1967, p. 71) reported on a number of studies relative to function determining structure. His conclusion was that if all neural elements are not fully utilized during the immediate postnatal period, it is quite possible that functional and structural status is significantly affected.

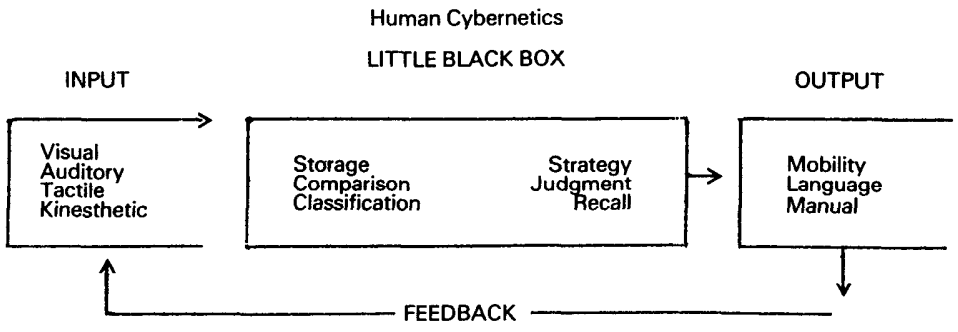
Patterning. Doman and Delacato (1960), in working with brain-injured children, observed them all go through the same developmental stages in their mobility that normal infants exhibit. This progressed from prone crawling, through creeping on hands and knees, to walking and running. The pattern for each progressed from no pattern to homologous, homolateral, and finally cross-pattern. In a two-year study of 76 children, a program of treatment included patterning each child for five minutes four times a day. At the end of the study, the mean improvement in mobility was 4.2 levels, on a scale of 13 levels. They felt this was a significant improvement when compared to the results of classic procedures used previously.

Dunn (1969, p. 5) speaks of the new science of cybernetics, which deals with the principles of control and communication as they apply both to the operation of complex machines and to the functions of organisms. Before you can get anything out of a system you first must have something going into it. With humans, the input is primarily visual, auditory, and tactile stimuli. Input is stored, compared, and classified. When a problem is presented, a process of recall, judgment,
and strategy leads to output in the form of behavior. With us, this behavior is mainly mobility, language, and manual competence. Feedback then affects future operations (See Figure 2). If an individual's development is slowed or stopped for some reason, Dunn attempts to redevelop him by bringing him back up through the same developmental stages that normal children exhibit, in order to provide the input into the system that was lacking in the past.

The member schools of the American Academy of Human Development use this type of sensorimotor training. On a questionnaire sent by the National Association for Retarded Children to parents of children enrolled in these schools, 90 percent credited some positive changes to the program. More than half indicated improvements in learning ability (61.7 percent), concentration and attention span (56.3 percent), visual performance (57.0 percent), mobility (51.0 percent), and reduction in hyperactivity (54.9 percent). Few parents reported receiving extravagant promises of improvement (Callaway, 1973).

There is considerable controversy over the validity of the claimed results of this type of treatment. Freeman (1976) outlined some of the sources of objections, and concluded it would probably be impossible to design and carry out a well-controlled study. Professionals will have to be well-informed about all major therapeutic approaches and weigh the benefits of each.

Figure 2



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Optometry. Visual perceptual processes are related to sensory-motor coordination of the child. Optometric vision training programs are based on the assumptions that vision is learned; vision has motoric and sensorimotor bases, problems in learning are due to disturbances of underlying functions in terms of visual efficiency and sensory-motor organization, vision and visual organization can be trained, and vision training will affect educational performance (Keogh, 1974, p. 37).

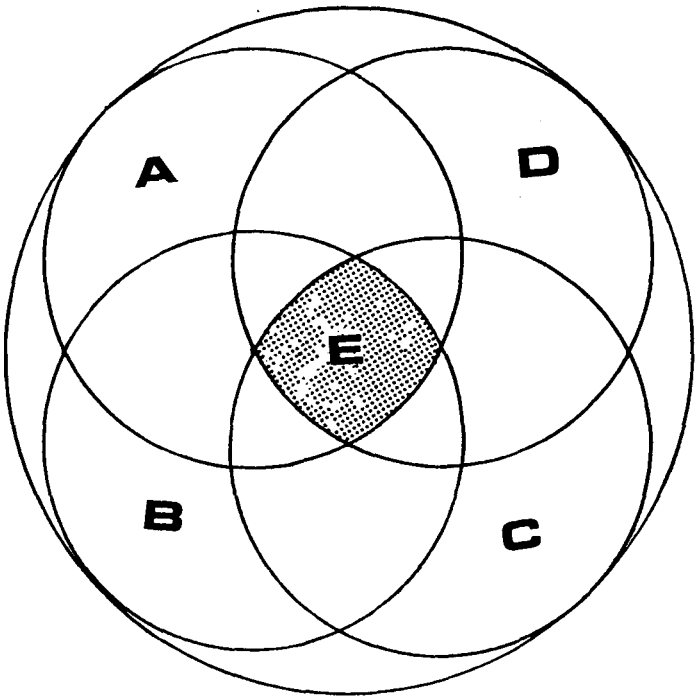
Locomotion (Figure 3, A) is considered the first step in the development of vision. As the infant begins to move not only his eyes but his whole body, he begins to locate (B) objects in his environment and become familiar with them. Labels (C) are given these objects by the other people around him and are learned by the infant. Language (D) then develops around the use of these labels. The emergent (E) of this entire process is what we know as vision; not only physical sight, but understanding and intelligence (See Figure 3). Any interruption in this process at any stage can cause defects in functional vision (Dunn, 1979).

In a study of learning-disabled children, Ayers (1972) found that those who received remedial activity specifically designed for their individual sensory integrative dysfunction showed a greater gain on academic tests than a matched control group. Statistical analyses suggest the gains were probably related to enhanced sensory integration resulting from the intervention program.

Many studies show a relationship between vision training and improved achievement in school tasks. However, there is little evidence supporting a direct causal interpretation pointing from visual perception to reading ability. Keogh (1974, p. 44) feels vision training must be only one part of a total program for the learning-disabled child.

Figure 3

The Development of Vision



A = Locomotion
B = Locating
C = Labeling
D = Language
E = Vision

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Cranial Osteopathy

Cranial treatments by an osteopathic physician are based on the cranial concept formulated by Dr. William Garner Sutherland (An Explanation of Your Doctor's Approach to Your Problem). The living skull is not a solid rigid unit of bone, but a number of bones fitting together and overlapping each other. Sutherland's observations included (a) the inherent motility of the brain and spinal cord; (b) the fluctuation (tidal flow) of the cerebrospinal fluid; (c) the mobility of the reciprocal tension membrane within the skull and spine; (d) the articular mobility of the cranial bones; and (e) the involuntary mobility of the sacrum between the ilia. If anything interferes with or restricts the normal motion of the cranial bones, such as a blow to the head or the pressure of a delayed and difficult childbirth, there may be resulting problems in the physical and mental health of the individual.

Dr. Dunn has found that approximately 99 percent of his hyperactive learning-disabled patients have some type of cranial problem which generally responds to treatment (Dunn, 1979). Viola Fryman (1976), an osteopathic physician, studied three groups of children: 74 average or above average students with no visual or learning problems, 32 average or above average students with visual problems, but no learning problems, and 103 with learning problems at school. Her hypothesis is that since the first two years of life are the most vulnerable period for the developing brain and central nervous system, any distortion of the bone structures surrounding them during that period will influence their development.

She discovered that 72.8 percent of children with learning problems had suffered considerable trauma before or during birth, as compared to 28.3 percent of those without learning problems. Children with visual problems suffered nearly twice the number of early childhood accidents as those without visual problems. The various patterns of strain were found in significantly greater numbers in the children with learning difficulties and visual problems than in the group of children without these problems.

Her conclusion was that structure does govern function and that improvement within the primary respiratory mechanism will improve neurologic function and therefore, intellectual performance. Generally, the younger the child is, the better the prognosis. Six to eight weekly treatments are usually necessary to produce a significant improvement in the child. It is recommended that visual and other training begin after the osteopathic treatments have been successful.

The Chicago College of Osteopathic Medicine sponsored a project to evaluate children whose severe learning and behavior problems were not responding to ordinary management by physicians or other agencies (Johnson, 1972). A complete, multidisciplinary evaluation of 40 children included physical, laboratory, and x-ray studies, eye, ear, nose, and throat exams, speech evaluation, neurologic examination, IQ and psychological testing, and family and social evaluations. Twenty-one of the 40 showed abnormality in physical, laboratory, and x-ray studies; 19 had ocular problems, 11 had abnormalities of ears, nose, and throat; 23 had abnormal EEG's; 19 were below normal intelligence; 35 had psychiatric problems; 31 had family problems; and 21 had social problems.

The conclusion was that all of the students except two had multiple sources of difficulty. Treatment probably will not be successful unless all problem areas are dealt with.

Thirty-two of the 40 children were contacted in a follow-up study (Johnson and Neumann, 1975). Of these, 23 were rated as improved, three slightly improved, and six not improved. Patients showing little or no improvement had a greater concentration of the combination of an abnormal EEC with below normal IQ. Only 14 of the 32 families began follow-up visits, and only half of these, continued for any le'ngth of time. Parents expressed a need for more help in dealing with ongoing problems, but did not avail themselves of the help that was offered.

Behavior Therapy

Behavior therapy is an accepted method of

treating hyperactivity. Feighner and Feighner (1974) reported behavior modification techniques are useful in eliminating specific maladaptive behaviors. Group instruction placed primary emphasis on selecting and defining rules, achieving consistency in limit setting, and making use of positive reinforcement for acceptable adaptive behavior. Raising a Hyperactive Child (Stewart and Olds, 1973) is strongly behavioral in approach. It contains many specific suggestions for parents and teachers on how to handle a hyperactive child in a positive, constructive manner. Emphasis is on deliberate control of the child's and the family's life to provide the maximum in positive experiences for the child and those who relate to him.

O'Leary et al. (1976) studied the effects of behavior therapy on hyperactive children in the classroom. The treatment program consisted of (a) specification of each child's daily classroom goals, (b) praise for achievement of goals, (c) daily evaluation of behavior relevant to goals, (d) daily progress report to parents, and (e) reward given by parent to child for progress toward goals. Improvement of the treatment group as compared to the control group was significantly greater on both the Connors Teacher Rating Scale and individualized Problem Behavior Ratings established for each child. The authors felt that behavior therapy is a useful adjunctive or alternative therapy for hyperactive children.

Stress Management

It is obvious that living with a hyperactive, learning-disabled child will create stress within the family. The success with which a family copes with this stress will vary because of many factors. Aguilera and Messick (1978) developed a paradigm of factors relating to stress management (See Figure 4). Balancing factors include perception of the event, situational support and coping mechanisms. A lack in any of these areas can lead to crisis rather than to restoration of equilibrium.

Other authors speak of factors relating to stress in different terms. Hansen (1974) offered the concepts of personal and positional relationships. Strong personal influence emphasizes individual needs and desires and voluntary behavior; it implies regenerative powers but lacks stability. Strong positional expectations develop in response to problems shared as a group, relate to all members of the group as well as the outside community; this implies efficiency and stability, but lacks regenerative powers.

Families are classified according to the strength of these two factors. The family with a HL-D child would be suffering a demoralizing stress with blame placed on a member of the family in most cases. The type of family most invulnerable to the type of stress would be the family with both strong personal and strong positional influence.

Shontz (1975) spoke of immediate versus long-term responses to stress. Immediate response to stress will be determined by the intensity of the threat, the type of situation in which the threat occurs, and personal variables such as adaptive style, cultural background, and tolerance levels. This is comparable to Selye's primary reaction of alarm, in which the organism is totally aroused (Shontz, 1975).

The long-term response to stress is that of resistance. An effort is made to keep the effects of the stress agent within tolerable bounds. Direct action, cognitive reappraisal, and anxiety are used interchangeably and cooperatively to deal with the stress on a day-to-day basis.

In a review of literature, Calhoun (1976) summarized the problems created specifically by the handicapped child. Although she dealt with families with children who were mentally retarded or physically handicapped, they probably do apply to hyperactive, learning-disabled children also.

One of the most consistent findings was the family's participation in community and social activities was often drastically reduced. There was a greater incidence of problems in family relations. Mothers frequently reported physical or psychological problems. It was found that the higher the socio-economic status of the family, the

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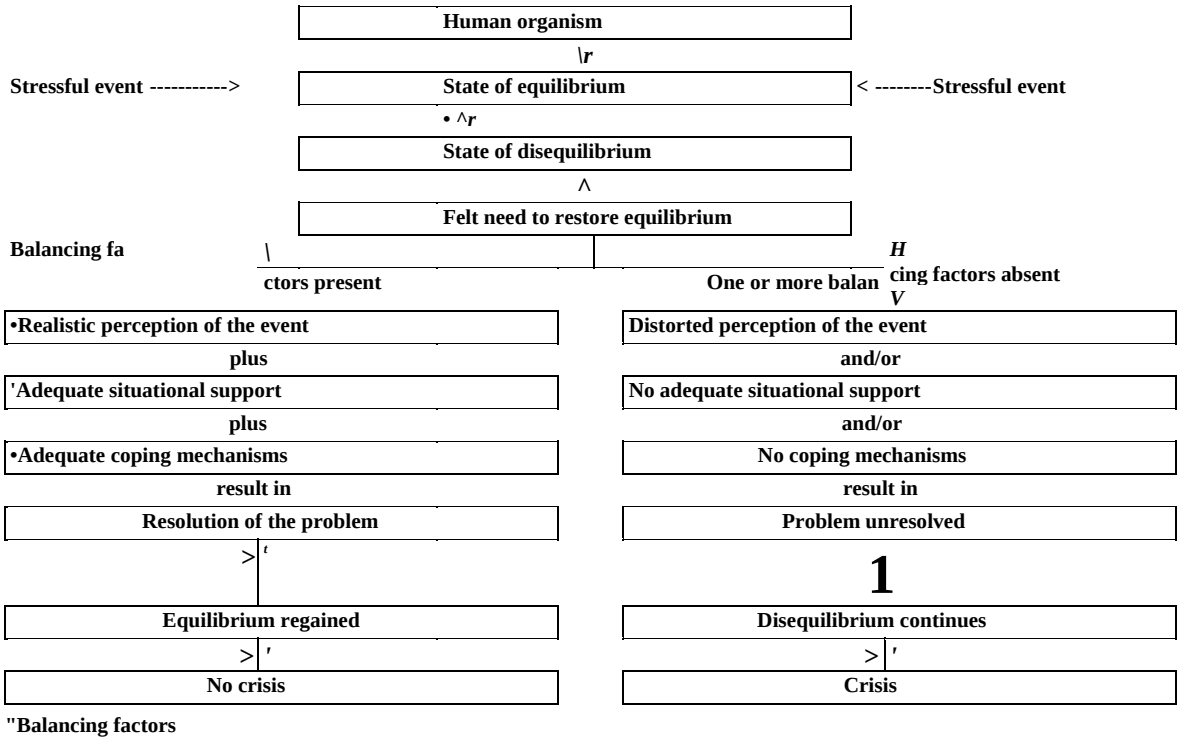
FIGURE 4

Paradigm: Effect of Balancing Factors In a Stressful Event



Aguilera, Donna C. and Messick, Janice M.: Crisis Intervention: Theory and Methodology: Third Edition, St. Louis: C.V.Mosby, 1978.

greater the initial grief impact of the diagnosis of mental retardation. For the upper-class family, adjustment seemed easier when an obvious physical disability was pre sent. For the lower-class family, a physical handicap with added demands for physical care made adjustment more difficult.

Roman Catholic families were more accepting of a retarded child than either Protestant or Jewish families. Mothers reported feelings of shock, disbelief, and grief at the time of the diagnosis, while fathers were described as angry. In planning for the future, the fathers tended to think in terms of specific goals, such as developing independence and finding appropriate job opportunities. Mothers thought of their roles in interpersonal terms: managing tensions among different family members. A handicapped male child was found to be more disruptive to family harmony than a handicapped female child.

Siblings, especially lower-class sisters, were frequently expected to assume a major share of the responsibilities for the handicapped child. Both sexes felt more embarrassment when the handicapped sibling was the same sex. Older siblings were able to cope better than siblings younger than the handicapped child. Children in larger families had greater coping scores than those in small families.

Summary

Each of the subjects reviewed has some relationship to the minimal brain dysfunction syndrome. Each claims some success in dealing with some of the causes or symptoms of hyperactivity. Yet, none can claim to approach a 100 percent success rate.

Since this syndrome has so many possible causes and symptoms, it cannot be expected that there will be one simple cure. Each child has his own unique pattern of disabilities. Many researchers suggest their approach can be a successful part of a program for hyperactive learning-disabled children. What is needed is a complete diagnosis of each individual child, to determine the exact nature, cause, and extent of his disability. Then a program can be designed to meet the specific needs of that child. Evaluation must be frequent and based only on the individual's progress, not comparing to any other individual or group. Since each program is unique, it would be difficult to plan and execute a controlled study of the results of this approach. Yet it does hold high hope for progress for each individual child.

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