In a discussion of children with attention deficit disorders (ADD), a nutritional metaphor is applied to make the following four observations: (1) hyperactivity requires multiple interventions; (2) treatment must be individualized; (3) management of ADD is a lifelong endeavor; and (4) evaluation must be multidimensional. Children with ADD are multiproblem children who need multimodal treatments. Studying the interactions between the child and the environment is important, since both the child and the environment can be targets for change. Longitudinal research is needed to examine the differences among hyperactive children who seem to "outgrow" their problems, those who continue to have mild difficulties, and those who have more serious longterm adjustment problems. Children with ADD do have high potential to become fully functional and productive individuals. (JW)
HIGH RISK, BUT ALSO HIGH POTENTIAL: THE PLEDGE AND THE PROMISE OF CHILDREN WITH ATTENTION DEFICIT DISORDERS

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First, let me offer--for all of us--our sincere appreciation to Sally and Bennett Shaywitz. They have done an admirable job of gleaning the mounds of data that are accumulating on attention deficit disorder and integrating the numerous puzzle pieces in a meaningful and highly useful fashion. What I would like to do this morning is to highlight three broad concerns, first elaborating two important points made by the Shaywitzes, and then adding a third and perhaps controversial message that deserves consideration.

The first point is that children with attention deficit disorder are multiproblem children who need multimodal treatments. In almost every arena of daily life these children experience, at least some of the time, confrontation or failure (Whalen & Henker, 1984). The majority have learning difficulties, serious behavior problems, social skill deficits, and problems regulating motivation and affect. They have difficulty controlling their own actions, are socially ostracized by peers, and are frequently in trouble with parents and teachers (Whalen & Henker, 1985). As you would expect, over time such adverse experiences take their toll, seriously circumscribing the child's opportunities for building self-esteem and positive perceptions of his own competence or efficacy.

To borrow an analogy from Scarr and Weinberg (1986), a nutritional model is more appropriate here, in many ways, than the more traditional medical model. In this context, the term nutritional has nothing to do with the additive-free or sugar-free diets advocated by Feingold and others. The term is, instead, a metaphor for conceptualizing the problems and needs of children with ADD.

There are at least four ways in which the nutritional metaphor applies. First, any healthy diet requires a balanced blend of diverse ingredients, and hyperactivity requires multiple interventions. An intervention diet targeted exclusively on building academic skills, enhancing social competence, improving self-control, or teaching parents effective management techniques will be inadequate. Hyperactive children's problems pervade diverse domains of functioning, and each problem interferes with optimal development in other areas. The effects of remedial education will be quite limited, for example, until the child learns to read the subtle social cues that signal appropriate responses in the classroom. And neither academic nor social skills training will succeed with a child unable to inhibit his initial impulses and regulate his emotional and motoric reactivity.

Our many contacts with desperate parents underscore the fact that there are few ongoing services for hyperactive children and their families, nor is there adequate coordination among those that are available. Hyperactive children tend to fall between the safety nets that are constructed, often in isolation, by the professions that serve these youngsters—education, medicine, and psychology (Henker & Whalen, 1980). Unfortunate historical developments and "turf problems" seem to prevent optimal communication and
integration across disciplinary bounds. We need to build formal structures to bridge these gaps, structures and mechanisms that will probably require radical shifts in our service delivery system. In just a few minutes, Dr. Swanson will be describing an ongoing multimodal program, illustrating the promise and the possibilities.

A second facet of the nutritional model concerns individualization. Just as dietary vulnerabilities, needs, and proclivities are emphatically individual, there is also broad heterogeneity of skills, deficits, and needs within the group of children designated hyperactive or attention deficit disordered. Nutrients required by one child may be less useful or even contraindicated with another. Some children need intensive intervention to help them regulate aggression, while others may need to learn to modulate a vigorous and irrepressible style that often disrupts or dismays other people. Some need to learn how to tackle a task, while others need help protecting their attention until the task is completed. Some need to learn to recognize their own failures, while others might need antidotes against the debilitating effects of failures.

A third aspect of the nutrition metaphor is that management is a life-long endeavor. There is no possibility of a "quick fix," no matter how scrumptious a meal or how masterful a 6-week treatment program. We have learned that, for many individuals, attention deficit disorder is a protracted condition, with needs and approaches changing as the individual progresses from one developmental phase to the next. We need treatments that endure if we are to have outcomes that endure.
There is a final ingredient of this nutritional model that follows from these other points: Evaluation must be multidimensional, using nontraditional as well as traditional criteria. The disappointing long-term outcomes with treated hyperactive children have taught us that it is not enough to focus on ratings and standard test scores. We need to assess a host of other facets, including goal orientation, response to challenge, self-perceived competence, problem-solving strategies, and the abilities to nurture intimacy and sustain friendships. We need to examine not only what the child is doing, but also what he is thinking and feeling about what he is doing, and about what is being done to him. Because of the potent impact that children with attention deficit disorder have on others, optimal treatment evaluations will span the child's social ecology, including a focus on classroom productivity and family harmony, as well as on the well being of classmates and teachers, siblings and parents. These domains are, of course, much more difficult to measure than the more traditional areas, but this fact does not lessen the need to do so.

Multidimensional assessments are also required for monitoring inadvertent treatment effects. When we talk about medication toxicity, for example, we must keep alert to the possibilities of much more than growth retardation, tics, or specific decrements in cognitive performance. Treatment is a salient event, and children, like people in general, have a need to explain things that happen to them. What is the message of medication? Does the child view it as analogous to wearing glasses, understanding that the pills help but will not do the reading for him? Or does he see it as confirming a deficit that he is powerless to correct through his own efforts? Should
cognitive self-regulation training begin before a medication trial so that a child will have an internal attributional anchor for the changes he and others notice? This type of sequential approach to treatment might encourage him to view improvements as under his own control, due to his developing competencies, rather than as dependent on a somewhat magical or mystical chemical process. All interventions—be they educational, psychological, or medical—convey messages, and a careful consideration of such potential emanative effects when presenting a therapeutic program to a child and his family can ensure that the implicit messages facilitate, rather than impede or counteract, positive outcomes (Whalen, Henker, & Hinshaw, 1985).

The other point made by the Shaywitzes that I would like to underscore is the value of studying the interactions between the child and the environment. The goodness-of-fit construct is an apt one. Hyperactivity does not reside in the child, and it certainly does not reside in the environment. We are talking about vulnerable children who are at serious risk for problem development. But these problems are expressed in a context rather than in a vacuum. The problems become worse in some settings and are not even noticeable in others.

This means that we have more than one avenue for change. We can change the child, but we can also change the environment. Parents and siblings can and certainly do learn to adjust. Academic tasks can be presented in many different ways, tailored to harness a child's strengths or to accommodate his weaknesses. Some classroom regimens seem to provoke problematic behaviors in hyperactive children, while others seem to diminish them.
Along these lines, research is needed to increase our understanding of differences among hyperactive children who seem to "outgrow" their problems, those who continue to have mild social and occupational difficulties, and those who may even adopt criminal lifestyles. The research mandate is for systematic studies of the natural histories, the life-long careers, of people with attention deficit disorders. Longitudinal research is, of course, very difficult to conduct, particularly in these days of funding cutbacks. The follow-up studies by Dr. Weiss and her colleagues serve as exemplary models. But there are still many unanswered questions. What are the personal, family, and environmental attributes that distinguish those with good from those with poor outcomes? Is goodness of fit one of the critical ingredients for success and, if so, how is a good person-environment match achieved? Are there some, as yet unidentified, children who were born with the same vulnerabilities but happened to be placed in different environments and never developed problems? Are there other children who would develop disabilities no matter what environments they encountered? These questions comprise an important research agenda for the future.

Although the goodness-of-fit notion is certainly appealing, we must also remember that it is applicable only within a bounded range. Environments are not infinitely elastic and, even if such infinite elasticity were a possibility, it is unlikely that it would be in the best interests of the hyperactive child. Learning to modulate one's own behavior in accord with situational cues and demands is a critical component of socialization. In other words, it is important that the demise of the "blame the child" thesis not be replaced by a "blame the family or the environment" stance that has merely shifted the target of victimization.
The third and final point is that children with attention deficit disorder are very high risk youngsters, but they also have high potential. They are quite different from retarded or autistic or severely disabled youth. With varying types and amounts of help, they can become fully functional and productive individuals. The hyperactive child's problems are often described in terms of noncompliance, but we also know that noncompliance can be adaptive, if it is thoughtful and modulated. Even the intensity that we hear so much about in a negative context has its positive aspects. Moreover, there may be a link between hyperactivity and giftedness, as the Shaywitzes suggest, and some individuals with attention deficit disorder may achieve a status alongside society's most creative and innovative contributors. The long-term data have been described as discouraging, but they also tell us that many hyperactive children do indeed make it. Our mandate is to discover why and how, so that we can increase the proportion who succeed. An equally important need is to ensure that our interventions, which are often designed to enhance manageability, do not stifle unique talents and creative styles.

In closing, the comprehensive review provided by the Shaywitzes makes it clear that hyperactive children have suffered from the luck of the draw—they are burdened by far more than an average share of problems. But we could also say that these youngsters are fortunate indeed, because their enigmatic styles continue to challenge and intrigue, to pique the curiosity of so many talented scientists and child specialists, including those who are here today.
References


