Commentary: Future Research Directions in Pediatric Obesity Research

Leonard H. Epstein
University at Buffalo

It is very exciting that treatment of pediatric obesity is considered for inclusion as an empirically validated treatment. Successful short- and long-term treatment effects have been reliably observed within laboratories, and these effects have been replicated across laboratories. This is not a time for researchers to congratulate themselves over past accomplishments, since the prevalence of obesity in pediatric populations has doubled in the last 20 years. There is an epidemic of obesity, and investigators need to work on the next generation of treatments.

Pediatric obesity treatment research can take a number of new directions, including developing a bridge to basic behavioral and biological science, incorporating advances in molecular and behavioral genetics, taking advantage of new dietary and pharmacological approaches to severe obesity, and developing new approaches to prevention. While space is not available for extensive discussion of these ideas, a brief overview of each area may stimulate investigators to initiate new approaches to pediatric obesity.

There has been an increase in obesity research, stimulated in large part by two sets of discoveries, leptin and the potential for identifying genes for obesity. These discoveries have brought basic scientists to obesity research, and there have been numerous advances in our basic understanding of adipose regulation, the role of leptin and other proteins such as the uncoupling proteins on intake and body composition, and the complexity of the genetic influence on obesity. There is very important research on critical periods in development and early introduction of carbohydrates that has immediate implications on pediatric obesity. Are high carbohydrate diets protective for obesity, or do they lead to obesity?

There is often a wide gap between basic science and clinical science, and clinical science can benefit from clinical investigators paying closer attention to advances in basic science. A number of basic science areas are relevant to obesity treatment interventions, including factors that influence craving and satiety, individual differences in the reinforcing value of food, and environmental variables that influence the reinforcing value of physical activity, memory and relapse, behavioral momentum and maintenance, or the role of neurotransmitters regulating intake.

The majority of pediatric obesity interventions have been with obese preadolescent children with mild obesity and without significant comorbidities. Behavioral interventions represent an important therapeutic modality for this population, but more aggressive treatments may be needed for those who are more obese, and those with significant comorbidities, such as sleep apnea, where large weight losses are needed. One type of aggressive intervention is represented by very low-calorie diets or protein-sparing modified fasts. These interventions have generally produced large weight losses in adults, with poor maintenance. The other type of aggressive intervention is pharmacological treatments, which have been associated in adults with either small weight changes, or when weight changes are large, other physiological side effects.
New drugs are on the way, and pediatric obesity researchers should be ready to take advantage of these agents to facilitate weight change, and perhaps weight maintenance. The most important question is whether behavioral and pharmacological interventions can be combined in new synergistic ways to improve weight loss and maintenance. In most instances, the programs are added together, without the attempt to integrate the effects of behavioral and dietary or pharmacological interventions. For example, if a drug has primary effects on satiety, can behavioral programs be developed that use the drugs to facilitate behavior change?

Finally, while it is important to treat obesity, it may even be more important to prevent it. There has been minimal work on the prevention of obesity in childhood and adolescence, so there are many opportunities. It is important to know who takes advantage of preventive efforts. Many families will wait until the problem affects their lives before acting, but others, perhaps those with obesity-associated morbidity, will take advantage of prevention efforts. Should prevention interventions be at a public health level, trying to change the behavior of many people, or only those at highest risk for becoming obese? Can the public health and high-risk approaches be integrated into a comprehensive public health approach? These are important questions that may have an important impact on public health.

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