National Institutes of Health Update: Translating Basic Behavioral Science into New Pediatric Obesity Interventions

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KEYWORDS

- Basic behavioral science • Early phase behavioral translation
- Intervention development • Pediatric obesity
- Obesity-related behavioral intervention trials (ORBIT) model

KEY POINTS

- Pediatric obesity is a common and important risk factor for future obesity and for chronic diseases.
- Basic behavioral research and early phase trials that translate knowledge into interventions to prevent or reduce obesity are important.
- The National Institutes of Health (NIH) supports basic and early phase translational behavioral research related to pediatric obesity through a variety of mechanisms.
- Findings from NIH-supported research in basic and early phase translational behavioral science are producing new discoveries that can be used to develop novel targets for pediatric obesity interventions.
- NIH support is critical to ensure progress in developing, testing, and ultimately implementing new and more effective interventions to reduce pediatric obesity.

INTRODUCTION

Excessive, early weight gain has been found to increase risk for obesity later in life,[1,2] and is a risk factor for many diseases, such as cancer, cardiovascular disease, and diabetes.[3,4] Pediatric obesity has been increasing steadily over the past 3 decades and, despite evidence that this increase may be slowing or stabilizing,

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especially in very young children,[3] obesity in childhood remains a significant behavioral risk factor and an important target of National Institutes of Health (NIH) funding efforts. In addition, wide disparities in obesity rates remain among population subgroups, with minority and low-income children and adolescents showing the highest rates of obesity.[3] Thus, an important focus of pediatric obesity research is identifying and implementing more effective interventions to reduce obesity in vulnerable and underserved groups, such as minority and low-income children and families.

NIH support for childhood obesity research spans the translational spectrum, from basic research on the psychological, behavioral, biological and social processes that characterize early childhood development and present potential targets for obesity-related treatments, to studies that translate knowledge about these processes into obesity-related interventions for children, to efficacy and effectiveness trials, and finally, to dissemination and implementation of treatments in clinical and community settings. NIH research in these areas has undoubtedly contributed, along with efforts at local, state, and national levels, to recent progress in achieving lower obesity levels in young children.[3]

This overview focuses on selected examples of NIH-funded early phase translational studies that use basic behavioral science findings to inform obesity interventions for children at all stages of development, from infancy through adolescence. It is not intended to be comprehensive, because an in-depth review of work in this area is beyond the scope of this article. Instead, by highlighting several promising lines of NIH-supported pediatric obesity research in the basic-to-clinical arena, this article seeks to illustrate how such research can contribute to efforts to reduce childhood obesity and ultimately, the chronic diseases resulting from it.

SUPPORT FROM THE NATIONAL INSTITUTES OF HEALTH FOR BASIC AND EARLY PHASE TRANSLATIONAL BEHAVIORAL RESEARCH IN PEDIATRIC OBESITY

Understanding the basic biological, behavioral, social, and psychological processes that underlie childhood obesity is key to identification of new treatment targets and the development of more effective interventions to tackle this behaviorally based risk factor (see[5] for an excellent overview of basic science findings in pediatric obesity research). Much of the NIH-supported basic behavioral research examining the influence of factors such as cognitive and affective processes, stress and stress reactivity, social relationships and dynamics, and the built environment on obesity-related health behaviors has involved the funding of investigator-initiated grants and Institute-specific research initiatives (see http://www.obesityresearch.nih.gov/ for information and resources related to NIH's obesity research portfolio, strategic plan, and funding opportunities). Recently, however, several large NIH-initiated efforts have been developed that support work in these areas.

National Institutes of Health Basic Behavioral and Social Science Opportunity Network

In recognition of the importance of basic behavioral research to health, the NIH initiated the Basic Behavioral and Social Science Opportunity Network (OppNet) in November 2009 to support research on the underlying basic mechanisms and processes that influence health-related behaviors (available: http://oppnet.nih.gov/).

OppNet has supported several lines of research on the psychological, social, cognitive, and neural mechanisms underlying obesity-related behaviors in children. These endeavors include investigation of the effects of regular exercise on neural circuitry and brain structure, which demonstrated improvements in frontotemporal white