Teen Health Study: Results To Date
Summer 2007

Before we show you the findings, here is a quick reminder of what the study was all about:

What was the purpose of the study?
The main goal of the study was to learn about the lives of children with and without type 1 diabetes as they go through adolescence. The study followed participants for 5 years beginning in July 2002 and ending this summer. We were interested in whether there are differences in the difficulties that children with and without diabetes face as they adjust to adolescence. We examined adolescents' attitudes toward themselves and others, relationships with family and friends, and health behaviors such as diet and exercise. For adolescents with diabetes, we also examined how they feel about diabetes and how they take care of themselves.

Who participated in the study?
In the first year of the study, 263 children between the ages of 10 and 14 were interviewed over the course of 15 months. We interviewed 132 children with type 1 diabetes and 131 children without diabetes. 48% were male, and 52% were female. Several people have moved out of the area over the past five years – to Georgia, Minnesota, New York, Virginia, Texas, and even Belgium – but almost everyone has stayed in the study (only 3 people have dropped out)!

What have we learned so far?
Here is a list of the articles published from the study so far and the most interesting findings from each one. If you would like to read any of the articles in full, please contact us, and we will send you a copy. Please remember that all of these findings come from averaging across people. Thus, your individual experience may fit with the findings for the entire group or your experience may be quite different.

- Helgeson, V.S., Viccaro, L., Becker, D., Escobar, O., & Siminerio, L. (2006). Diet of adolescents with and without diabetes: Trading candy for potato chips? *Diabetes Care*, 29, 982-987.

  Do you remember the 24-hour recall interviews we did over the phone in the first year of the study? We used the information about what adolescents ate during the day for this article. We compared the food intake of adolescents with diabetes to adolescents without diabetes. We also compared everyone's food intake to the nutrition recommendations of the American Diabetes Association and the Dietary Reference Intakes. First, we found that both groups of adolescents met requirements for carbohydrates and protein but fell short of recommendations for fiber. Second, we found that both groups ate slightly fewer calories than recommended. However, the 24-hour recall method is likely to result in an underestimate of calories as both children and parents are likely to forget to report

some of the things that adolescents eat. Both groups of adolescents ate too much saturated fat (especially boys with diabetes), and adolescents with diabetes ate too much total fat compared to recommendations. Most interesting, when adolescents with and without diabetes were compared, the diets of those with diabetes were higher in fat and protein, and the diets of those without diabetes were higher in carbohydrates and sugar. We suggested that kids with diabetes might be "trading candy for potato chips;" that is, they might be passing up high-sugar foods and instead choosing foods that are higher in fat or protein in an attempt to avoid high blood sugars.

- Helgeson, V.S., & Novak, S.A. (2007). Illness centrality and well-being among male and female early adolescents with diabetes. *Journal of Pediatric Psychology*, 32, 260-272.

  This article focused on how adolescents with diabetes view their illness and the effect this has on their psychological and physical well-being. People differ in the extent to which they define themselves in terms of having an illness like diabetes – this is called "illness centrality". Some people make diabetes a defining part of who they are, and other people try to minimize the role of diabetes in their lives. In addition, people vary in how negative or positive they perceive diabetes. In this article, we found that girls viewed diabetes as more central to their self-concepts than boys. How central diabetes is to someone's self-concept is not related to psychological distress or health. However, when adolescents viewed the illness as central to the self and as negative, they were distressed. This turned out to pertain only to girls. Girls who viewed the illness as central to the self and viewed the illness as quite negative also had the lowest self-esteem. The article suggests that it is the combination of viewing diabetes as an important part of who someone is and as a very negative feature of the self that is troublesome. It might be more helpful to focus on positive aspects, such as having a lot of control over how diabetes affects the body.

- Helgeson, V.S., Reynolds, K.A., Escobar, O., Siminerio, L., & Becker, D. (2007). The role of friendship in the lives of male and female adolescents: Does diabetes make a difference? *Journal of Adolescent Health,* 40, 36-43.

  We know how important friendships can be to adolescents. In this article, we compared the friendships of adolescents with and without diabetes, focusing on whether support from friends and negative relations with friends were related to health. First, we found that adolescents with and without diabetes were equally likely to have a best friend and a boyfriend or girlfriend. Also, having diabetes was not related to the amount of support received or the negative interactions experienced in friendships. In other words, the friendships of adolescents with and without diabetes were more similar than different. We did find differences between girls' and boys' friendships: Girls reported more support from friends and fewer negative interactions with friends than boys. Since friendships are so important to adolescents, we wondered if friendships are related to psychological or physical

health. We found that negative relations with friends were related to poor psychological health for boys and girls with and without diabetes, whereas friend support was related to better psychological health for boys. For adolescents with diabetes, negative relations were related to poor metabolic control (higher HbA1c). It seems that maintaining good relationships with friends is very important!

- Helgeson, V.S., Escobar, O., Siminerio, L., & Becker, D. (2007). Unmitigated communion and health among adolescents with and without diabetes: The mediating role of eating disturbances. *Personality and Social Psychology Bulletin,* 33, 519-536.

  People interact with other people and their environment in different ways. Some people focus more on the self (this is called "agency"), while other people focus more on connections with others (this is called "communion"). Both of these styles are useful, especially when people use a mixture of both. The extreme forms of these styles are much less useful and can lead to health problems. In this article, we looked at the extreme form of communion, called "unmitigated communion", which means focusing on others while neglecting the self. We found that adolescents who scored higher on a measure of unmitigated communion had more health problems, including greater psychological distress and more disturbed eating. For adolescents with diabetes, unmitigated communion was related to poor metabolic control (high HbA1c) and higher LDL cholesterol. The idea is that people who put others before themselves and get overly involved in other people's problems might be neglecting themselves because they are too busy taking care of others. This would especially be a problem for people with diabetes because taking care of diabetes requires a lot of attention to your own health. On the other hand, communion was associated with better psychological health and less disturbed eating. So, focusing on others can be helpful, just as long as you don't forget to think about your own health and well-being!

- Helgeson, V.S., Snyder, P.R., Escobar, O., Siminerio, L., & Becker, D. (In press). Comparison of adolescents with and without diabetes on indices of psychosocial functioning for three years. *Journal of Pediatric Psychology.*

  In this article, we compared adolescents with diabetes to adolescents without diabetes to see if there were any differences in psychological health during the transition to adolescence. This is a very important article because we did not find any major differences in psychological health between adolescents with and without diabetes over the first 3 years of the study. There were no differences in depressive symptoms, anxiety, anger, or behavioral problems.

- Helgeson, V.S., Reynolds, K.A., Siminerio, L., Escobar, O., & Becker, D. (In press). Distribution of parent and adolescent responsibility for diabetes self care and links to health outcomes.

During adolescence, young people often start taking more responsibility for many aspects of their lives, including taking care of their health and diabetes. Families with diabetes may remember responding to a questionnaire that examined how diabetes responsibilities were divided up among parents and adolescents. Both parents and adolescents responded to this questionnaire. Although parents thought they were more responsible for some tasks compared to adolescents, and adolescents thought they were more responsible for some tasks compared to parents, the findings for parents and adolescents were the same. (By the way -- the same thing happens in married couples -- everyone estimates that they do more than the other person.) Both parents and adolescents agreed that as adolescents got older, parents began taking less responsibility for diabetes care and adolescents started taking more responsibility, but parents and adolescents also continued to share some responsibility. We wondered if the way the responsibility for diabetes treatment is divided up within families would have any effect on adolescents' psychological or physical health. We found that sharing responsibility for diabetes care between parents and adolescents was associated with better psychological health, good self-care behavior, and good metabolic control (lower HbA1c). Sharing responsibility may be beneficial because having two or more people responsible for diabetes treatment makes it more likely that the treatment will take place. Also, parents would have the chance to teach and encourage good self-care behavior so that adolescents would learn how to care for diabetes on their own in the future.