



Educational Sessions at ADA Camp Midicha Improve Carbohydrate Counting and Insulin Calculation Ability in Children with Type I Diabetes Mellitus

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Introduction: Type 1 diabetes mellitus (DM) is one of the most common chronic diseases in children. The ability of affected children to calculate carbohydrate consumption per meal, apply a correction factor based on their blood glucose, and administer an accurate dose of insulin is a key component for good diabetes control. Multiple studies, however, have shown that insulin dosage calculations, particularly carbohydrate assessment, are inaccurate in > 50% of children with DM. Surveys of attendees at diabetes camps show that campers and camp personnel have reported increased confidence and ability in counting carbohydrates and administering insulin, but no quantitative tools have been used in these reports.

Objective: To determine whether educational sessions provided during a one-week diabetes camp would improve carbohydrate counting and insulin dosage calculation in children with Type 1 DM.

Methods: With the assistance of the American Diabetes Association (ADA), parents and campers were recruited to the study. The Pediatric Carbohydrate Quiz (PCQ) was administered to the children before or on the first day of camp, either electronically or on paper. All subjects participated in camp activities, which included dietary education. A post-intervention PCQ was administered on the last day. Data were analyzed using the paired t-test.

Results: Over 2 sessions, 144 campers participated, mean age 13.8 ± 1.5 years, 61.4% female, 84.2% White and 16.4% first-time campers. Both questionnaires were completed by 79.2% (114/144) of campers. The highest possible score on the PCQ is 72. The mean pre-camp PCQ score was 59.0 ± 7.1 vs. a mean post-camp score of 61.2 ± 5.9 ($p < 0.0001$). Females had a significant paired improvement ($p < 0.0001$), while males did not ($p = 0.06$). Similarly, experienced campers had a significant improvement ($p = 0.02$) but first-time campers did not ($p = 0.59$).

Conclusion: Attendance at a one-week session at Camp Midicha improved the ability of adolescent campers to assess carbohydrate counting and calculate insulin doses.