



# American Camp Association Camp Research Forum Book of Abstracts

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January 3, 2024

Dear Colleagues:

The ACA Research Forum is an opportunity for researchers and camp professionals to share and discuss new research related to campers, camp staff, camp programs, and a wide variety of other camp-related topics.

This book includes 29 abstracts that will be presented at the 2024 American Camp Association (ACA) Research Forum to be held during the ACA annual conference from February 5-9 in New Orleans, LA. Abstracts have been grouped into similar areas and will be presented across five verbal sessions and one poster session. All abstracts will be on display as posters.

We are pleased to recognize the recipients of two research awards in 2024:

- Marge Scanlin Award for Outstanding Student Research: *Monica Arkin*
- Eleanor P. Eells Award for Excellence in Research in Practice: *Camp Twin Lakes*

The Camp Research Forum has grown in quantity and quality over the past two decades. ACA's Research and Evaluation Advisory Committee (REAC) and the previous Committee for the Advancement of Research and Evaluation (CARE) have been instrumental in advancing camp research. Staff at ACA have been enthusiastically supportive, especially Dr. Laurie Browne and Melany Irvin. Two external reviewers provided peer-reviewed evaluations for the selection of these abstracts. We thank these reviewers for their time, expertise, and energy.

We look forward to presenting these papers at the 2024 Camp Research Forum, but also recognize that many people cannot attend the annual meeting. We hope these short abstracts and poster images will provide information for those not able to attend. Please contact the authors if you have further questions.

Best wishes,



Ann Gillard, Ph.D.  
2024 ACA Research Forum Co-Coordinator

The proper way to cite these abstracts using APA 7<sup>th</sup> edition is:

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# WE ARE NOT ALONE: EXAMINING THE IMPACT OF A TWEEN-TEEN DIABETES DAY CAMP

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Type 1 diabetes (T1D) is a chronic disease that influences physical, mental, and social health. It affects not only the person with the disease but the entire family. Nearly 250,000 children in the US have T1D. Worldwide T1D diagnosis is estimated to double by 2040 (Gregory et al., 2022). Due to this increase, there is cause for concern regarding the quality of life for youth and their families (Robinson et al., 2018). The stress of treatment regimens, such as monitoring glucose levels and feelings of isolation, can decrease a person's quality of life (Anarte et al., 2020). To develop self-management of long-term health behaviors, a person must be intrinsically motivated (Ryan et al., 2020).

The self-determination theory (SDT) suggests that three psychological needs of competence, autonomy, and relatedness are necessary for motivation to engage in behaviors. When these needs are met, the motivation for chronic disease self-management can be accomplished. Medical specialty camps have demonstrated increased camper well-being in all areas of health including intellectual, social, and mental (e.g., Hill et al., 2022). Currently, there is no cure for T1D and diagnosis continues to rise, expected to reach 17 million worldwide by 2040 (Gregory et al., 2022). Camps can effectively increase camper self-management skills for chronic disease (Gagnon et al., 2019). Therefore, the purpose of this study was to engineer a theory-based experience to examine the impact diabetes camps have on building effective diabetes management behaviors in youth.

## Methods

The inaugural REACH teen/tween camp for youth with diabetes, ages 11-16, was held on a Mountain West region college campus. Thus volunteer-based day camp was hosted for five days in summer 2023. The volunteer team included medical staff from the local hospital, college students and staff, as well as Lions Club members. All camp activities were engineered around the three basic psychological needs described by the SDT (i.e., competence, autonomy, and relatedness). The activities for the camp included various crafts, hiking, swimming, yoga, rock climbing, and educational workshops such as pump training and stress management. The three basic psychological needs were also embedded in such activities as counting carbs, meeting friends, insulin dosage during lunch/snack time, and trying new management strategies learned at camp. Community partnerships (e.g., Lions Club M28) played a vital role in giving the opportunity for evidence-based practice and making the program accessible for all participants. Data were collected through the Basic Psychological Needs Satisfaction & Frustration Scale (BPNSFS) questionnaire, along with a 7-item measure on diabetes management (pre- post- and follow-up). Blood glucose for Time in Range (TIR) was collected through a cloud-based Electronic Medical Record that allowed staff to monitor campers' TIR.

## Results

Twenty-six out of 32 campers (81% response rate) completed both the pre and post-tests. The majority of the campers were female (53%), white (91%), and an average age of 12.5 years. The average time diagnosed with T1D was two years. Campers' average level of enjoyment was 9.5 (1-10 scale). On average, campers made 4.5 new friends. Campers' favorite activity was Gaga ball. The most reported new knowledge learned at camp was general knowledge of pumps and their use.

A paired sample *t*-test was used to calculate composite scores for autonomy, relatedness, competence, and diabetes management. The mean score for all four outcomes variables increased. However, only Autonomy pretest ( $M = 3.93, SD = .75$ ) to posttest ( $M = 4.49, SD = .56$ ), with  $t(25) = -6.258, p = <.001$ , effect size  $r = 1.2$  and Relatedness pretest ( $M = 4.31, SD = .79$ ) to posttest ( $M = 4.53, SD = .49$ ), with  $t(25) = -2.168, p = .040$ , effect size  $r = .4$  were statistically significant. Twenty-one out of 32 (66%) campers had continuous glucose monitor. The campers' overall week average blood glucose level for campers was 150 mg/dL. The campers' average time in range (TIR) was 71% which falls within the target TIR of 70% or more (see Table 1).

Table 1  
*Percentage of time in range*

	AVG. Blood Glucose	% Time in Range	Activities
Monday	159	62%	Pool
Tuesday	153	73%	Hike
Wednesday	146	78%	Water obstacle course
Thursday	144	72%	Kickball
Friday	149	72%	Scavenger hunt

### Discussion and Implications

This study explored the use of SDT to examine the effectiveness of a new diabetes camp for youth. Autonomy and relatedness were both statistically significant, suggesting that camp can be an effective way to increase motivation, thus improving diabetes self-management, aligns with previous research (Collins et al., 2021). Caldairou-Bessette et.al. (2020) suggest that a youth's voice is more than spoken words, it is both verbal and non-verbal language, which aligns with the observation that this camper began to show a consistent increase in comfort with communication and choices throughout camp. The results demonstrated diabetes camps can provide a positive opportunity for youth to become motivated and positively impact health. This study adds to the body of research suggesting that diabetes camps can provide effective strategies for helping youth manage their diabetes. This is demonstrated by the weekly average of blood glucose levels for campers being 150 mg/dL. These results are within the average target glucose level of 70–180 mg/dL. It is also demonstrated by the weekly average TIR for campers being 71% which falls within the target TIR of 70% or more. Camp can help youth to better manage their blood sugars, realize they are not alone, and hopefully resulting in better physical and emotional health and mitigating the risk of complications. The limitations of this study are the small sample size and lack of diversity. The findings are limited to the camp setting. Recommendations for further studies are to follow up with the campers at various intervals of time (e.g., three-months, six-months, and 12-months) to determine if they are continuing, at home, the knowledge (e.g., healthy choices, positive social connections, etc.) they learned at camp. With the diagnosis of T1D expected to double world-wide by 2040, and having no current cure for T1D, these continued evidence-based efforts might alleviate this society issue (e.g., Arrington et al., 2023). Furthermore, these camps experiences can assist youth to have a positive impact on quality of life by realizing they are not alone in this fight.

### References

Anarte, M., Carreria, M., Gea, A., Varela, E., Anarte, M., Sigüero, J., Gea, I. (2020), Diabetes

- summer camp in children and adolescents with type 1 diabetes: Effects on well-being and quality of life. *Endocrinología, Diabetes y Nutrición*, 67(5), 326–332.  
<https://doi.org/10.1016/j.endien.2019.08.008>
- Arrington, B., Hill, E., Williams, R., Harvey, T., Barmoh, A., & Hill, L. (2023, February 21–24). Lions, tigers and glucose, oh my: Piloting a teen diabetes camp on campus. In A. Gillard (Chair), *ACA Camp Research Forum Book of Abstracts* [Symposium]. American Camp Association's 2023 Camp Research Forum, United States.
- Caldairou-Bessette, P., Nadeau, L., & Mitchell, C. (2020). Overcoming “you can ask my mom”: Clinical arts-based perspectives to include children under 12 in mental health research. *International Journal of Qualitative Methods*, 19.  
<https://doi.org/10.1177/1609406920958959>
- Collins, T., Hill, E., Reifschneider, K., Ramsing, R., & Heagele, J. (2021). Using a medical specialty camp to promote health and wellness among youth with diabetes. *Journal of Recreation, Parks, and Tourism in Public Health*, 5, 93–108.  
<https://doi.org/10.2979/rptph.5.1.06>
- Gagnon, R., Garst, B., Townsend, J. (2019), Tough decisions in medical specialty camps: relationships between camp dosage, outcomes, and camper attendance. *Social Science & Medicine*, 221, 49–57. <https://doi.org/10.1016/j.socscimed.2018.12.014>
- Gregory G.A, Robinson T.I.G., Linklater S.E., et al. (2022). Global incidence, prevalence, and mortality of type 1 diabetes in 2021 with projection to 2040: a modeling study. *Lancet Diabetes Endocrinology*. 2022;S2213-8587(22)00218-2.  
[https://doi.org/10.1016/S2213-8587\(22\)00218-2](https://doi.org/10.1016/S2213-8587(22)00218-2).
- Hill, E., Williams, R., Haegele, J., Ramsing, R., Arrington, B., & Hill, L. (2022). Family diabetes camp amidst COVID-19: A community of practice model. *Journal of Youth Development*, 17(4) 160-174. <https://doi.org/10.5195/jyd.2022.1262>
- Robinson, D. J., Coons, M., Haensel, H., Vallis, M., & Yale, J.-F. (2018). Diabetes and mental health. *Canadian Journal of Diabetes*, 42. <https://doi.org/10.1016/j.cjcd.2017.10.031>
- Ryan, R., Deci, E. (2020), Intrinsic and extrinsic motivation from a self-determination theory perspective; defeminations, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, 1–11. <https://doi.org/10.1016/j.cedpsych.2020.101860>