

Closed-loop control benefits T1DM in prolonged winter sport

September 18 2017



(HealthDay)—For adolescents with type 1 diabetes (T1D), a closed-loop

control (CLC) system is associated with improved glycemic control and reduced exposure to hypoglycemia during prolonged exercise, cold temperatures, and high altitude, according to a study published online Aug. 30 in *Diabetes Care*.

Marc D. Breton, Ph.D., from the University of Virginia in Charlottesville, and colleagues conducted a [randomized trial](#) involving 32 adolescents with T1D who participated in a five-day ski camp at two sites. Participants were randomized to the University of Virginia-CLC system or remotely-monitored sensor-augmented pump.

The researchers found that the percentage time in range was improved using CLC versus the physician-monitored open-loop (71.3 versus 64.7 percent; +6.6 percent; 95 percent confidence interval, 1 to 12; $P = 0.005$), with maximum effect late at night. Overall, there was improvement in exposure to hypoglycemia and carbohydrate treatments ($P = 0.001$ and 0.007 , respectively), with strong ski level effects during the daytime ($P = 0.0001$ and 0.006 , respectively). Ski/snowboard proficiency was balanced between the groups, with a strong site effect. No adverse effects were seen in association with CLC; feedback from participants was overwhelmingly positive.

"CLC in adolescents with T1D, improved [glycemic control](#) and reduced exposure to hypoglycemia during prolonged intensive winter sport activities, despite the added challenges of cold and altitude," the authors write.

Several authors disclosed financial ties to the pharmaceutical industry.

More information: [Abstract/Full Text \(subscription or payment may be required\)](#)

Copyright © 2017 [HealthDay](#). All rights reserved.

Citation: Closed-loop control benefits T1DM in prolonged winter sport (2017, September 18)
retrieved 27 April 2024 from

<https://medicalxpress.com/news/2017-09-closed-loop-benefits-t1dm-prolonged-winter.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.