GLYCAEMIA AND PERFORMANCE METRICS OF PROFESSIONAL CYCLISTS LIVING WITH TYPE 1 DIABETES OVER AN ENTIRE RACE CALENDAR

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Objective and background: Hypoglycemia during and after exercise is an important issue for people living with type 1 diabetes (T1D). This study will use performance- and diabetes-related data from the Team Novo Nordisk (TNN) professional cyclists to achieve the following: 1) summarize training load and glycemic variables over an entire year; 2) use machine learning to develop a warning system to predict dysglycemia post-exercise.

Methods: First, we will evaluate factors related to glycemic management and performance in 11 male professional cyclists with T1D from 1st Dec 2018 to 30th Nov 2019. Metrics related to glycemia will be determined using continuous glucose monitoring (Dexcom G6, San Diego, CA). Training sessions and races are logged using a Wahoo GPS cycle computer (Wahoo Fitness, Atlanta, GA) to monitor power output (W), cadence (rpm), temperature (°C), speed (km/h), elevation (m), distance (km), duration (h:min:s) and energy expenditure (kcal). Heart rate (bpm) is determined (Wahoo, Wahoofitness, Atlanta, GA) during all exercise sessions. Second, a machine learning model that is trained on this dataset will be used to develop a warning system to predict dysglyaemia (hypoglycemia, hyperglycemia, rapid changes in blood glucose) in both the short (<30 min) and longer term (6-8 h), with a particular focus on the nocturnal period, post-exercise.

Results: Data interpretation and analysis is currently ongoing.

Conclusions: Examination of current practices by the TNN riders may reveal new opportunities to improve glucose management and is an important tool for educating the wider public. Development of a hypoglycemia warning system for during and after exercise could be applied to other populations at risk of hypoglycemia.

**Abstract guidelines:**

1. **Content. Be sure your abstract contains the following information before submission:  
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