

Regular physical activity urged for type 1 diabetes patients

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By Marilynn Larkin

NEW YORK (Reuters Health) - A recently released consensus statement on managing exercise for patients with type 1 diabetes underscores the importance of regular physical activity, despite glycemia-associated challenges.

Statement coauthor Dr. Michael Riddell of York University in Toronto, Canada, told Reuters Health it "provides the most up-to-date evidence and decision-making for the management of blood glucose levels for exercise and sport in type 1 diabetes."

"In it, we describe the most appropriate nutritional strategies for pre-exercise preparedness and for post-exercise recovery," he said by email. "Also provided is an evidence-informed decision making algorithm for insulin dose adjustments for the physically active patient."

Dr. Riddell highlighted some of the key points of the statement, published in *The Lancet Diabetes and Endocrinology* online January 23.

- Regular physical activity promotes insulin sensitivity in type 1 diabetes and can help patients to achieve their A1c and lipid targets.
- Mild-to-moderate intensity aerobic exercise, like brisk walking, jogging and cycling, can promote hypoglycemia unless insulin dose adjustments are made at the meal prior to exercise. As an alternative to reducing insulin, increased carbohydrate intake can ameliorate hypoglycemia.
- Intense exercise, like sprinting, ice hockey and combat sports can cause hyperglycemia and conservative insulin dose adjustment may need to be made in early recovery.
- Tools such as insulin pumps and continuous glucose monitors can improve glycemic control around sport and exercise.

Dr. Camillo Ricordi, Director of the Diabetes Research Institute at the University of Miami, Florida, told Reuters Health, "A unifying thread is emerging over the whole type 1 and type 2 spectrum of diabetes, namely the triggering of innate immunological and inflammatory pathways leading to insulin resistance, beta-cell dysfunction and beta-cell destruction."

"Regularly exercising at moderate intensity has been shown to efficiently and positively impact upon physiological imbalances caused by several morbid conditions," observed Dr. Ricordi, who was not involved in developing the statement.

"Even in different immunological dysfunctions, physical exercise has been prescribed as a complementary therapeutic strategy. Telehealth applications will greatly enhance our ability to

improve compliance and reach the hundreds of millions who could benefit from the proposed lifestyle intervention strategies," he said by email.

"Nevertheless, exercise is only one element of a sequential integrated approach to wellness in subjects with diabetes, and for anyone who would like to maximize the probability of a healthy lifespan," he noted.

"In this direction, exercise without an appropriate anti-inflammatory diet, such as by increasing polyphenols and omega 3, while reducing omega 6, refined carbohydrates and heavily processed food products, could be completely ineffective," he added. "Exercise telehealth applications should therefore always be integrated with diet and nutritional guidelines."

With respect to nutrition, the statement includes daily energy requirements, carbohydrate requirements to enhance endurance (aerobic) exercise performance and prevent hypoglycemia under low and high insulin conditions, nutritional requirements for recovery after exercise and the need for adequate fluid replacement. The authors note that caffeine intake (5 to 6 mg/kg) before exercise attenuates the decrease in glycemia during exercise in individuals with type 1 diabetes, but it might increase the risk of late-onset hypoglycemia.

Contraindications and cautions for exercise include elevated ketones in blood (1.5 mmol/L or higher) or urine (at least 2+ or 4.0 mmol/L); severe hypoglycemia (2.8 mmol/L or higher) or a hypoglycemic event within 24 hours of exercise; and diabetes-related complications (HbA1C way above target, unstable proliferative retinopathy, severe autonomic dysfunction or renal failure).

Dr. Riddell and 11 coauthors have received funds from companies involved with diabetes treatments.

SOURCE: <http://bit.ly/2jLMBt6>

Lancet Diabetes Endocrinol 2017.

- See more at: <http://www.mdalert.com/news/article/regular-physical-activity-urged-for-type-1-diabetes-patients#sthash.N13OyBvj.dpuf>