

## **Abstract**

### **Title:**

Diabetes mellitus in Equestrian Sport in Czech Republic

### **Objectives:**

The aim of the literature review part of the thesis was to give an introduction to the issue of diabetes mellitus as well as the effect of sport on the decompensation of the disease, to search for available sources on a narrowly focused topic - the impact of horse riding on diabetes mellitus, and to process the findings in a clear form into the first (literature review) part of the work.

The goal of the second (research) part was to map, with the use of questionnaires and interviews, the situation of diabetes patients in the Czech Republic who do equestrian sport actively. In the case study their subjective feelings were reviewed. The main aim was to prove the positive impact of horse riding on diabetes mellitus, or more precisely to find out if it is stress or physical exertion that has a greater effect on the blood glucose (BG) level. Furthermore, the thesis focuses on the issue of public awareness of disease management as well as first aid.

### **Methods:**

The first part of the thesis was carried out in the form of a literature review, for which research articles and other literature sources were found primarily on electronic information portals (mainly Web of Science, etc.)

For the second (research) part a questionnaire (on the website [vyp1nto.cz](http://vyp1nto.cz)) was chosen as the main method for data collection and sent out through the Czech Equestrian Federation (CZE FN, ČJF) and other equestrian portals in the Czech Republic ([jezdci.cz](http://jezdci.cz), [jezdectvi.cz](http://jezdectvi.cz), various regional organisations of CZE FN,...). Subsequently, respondents were selected for the recorded interview, which was carried out for the purposes of the thesis.

### **Results:**

The resulting data may be significantly distorted due to the small number of respondents. Given the number of diabetics in the Czech Republic (type 1 and type 2) for the year 2018 (1,020,483) and the number of actively racing riders for the same year (7,950), there should be 761 people who are racing and are diabetics in a population of 10,650,000. However, this

estimate may differ significantly from the actual number.

All respondents confirmed that physical activity associated with equestrian sport reduced their blood glucose levels. This agrees with the available sources on the topic. Regarding the effect of stress on glucose levels, it has not been unambiguously determined whether glucose levels will decrease or increase under the influence of racing stress in horse riding. The available literature is not unanimous.

The frequency of blood sugar measurements increased for 35.71% of the respondents on a racing day, remained at the same level for 57.14% of them, and 7.14% of them stated that they were measured less than usual on a racing day. The figures indicate that these respondents are aware that regular measurements help to compensate the disease.

Most of the respondents (71-78%) did not confirm the hypothesis that hypoglycaemia would be more likely to occur on a day when greater physical activity (race, training) had taken place, which is a very positive finding. 64.29% of the respondents confirmed that during the training, physical exertion was experienced whereas stress was eliminated. For racing stress, the responses were more complicated, with only 28.57% of respondents reporting a predominant effect of stress on glycaemic control.

### **Conclusions:**

The influence of stress and physical exertion during the race and training was not unambiguous. It has been confirmed that training mainly causes physical exertion and eliminates stress, which results in a drop in blood sugar. The impact of show jumping on glycaemia was not clear and requires further investigation.

**Keywords:** Diabetes mellitus, equestrian sport, blood glucose, physical effort, mental stress