

# An experience in recreational diabetic day in a non-governmental organization, t1 diams, in Mauritius

## Abstract

**Background:** T1Diams, a Mauritian non-profit organisation, is specialized in the care and self-management of Type 1 Diabetes in the island of Mauritius. During the last decade, they have been working on the implementation of therapeutic and educational activities for its members. They regularly organize a recreational diabetic day ('Enjoy life' or 'T1Diams en balade'). The aim of the study is to give an overview of a typical diabetic recreational day in T1Diams.

**Methods:** The author participated in several of these activities organized by the organisation in 2014 and 2015. He placed himself in the shoes of a Type 1 diabetic patient and did all the activities organized for him. Clearance was granted by the managing committee of the organisation.

**Results:** 22 patients came for that event. Out of 172 patients, only 11 ( $\geq 12$  years old) attended the day, whereas for those less than 11 years old, 11 out of 33 came. The morning session was dedicated to diabetic therapeutic education and was carried out by two diabetes nurses. In the afternoon session there were physical activities for those  $> 12$  years old and low intense activities for the other group. An optometrist did a presentation on diabetes and eyes problems. The menu for the lunch was elaborated by a nutritionist. Blood glucose levels were monitored on arrival, before lunch and on departure (15h00). The patients did their insulin injections at noon and any hyperglycaemia noted during the day was corrected with rapid acting insulin. Hypoglycaemia was treated using an established protocol. Animators were present to ensure the proper functioning of the day.

**Conclusion:** This recreational diabetic day gives an opportunity for parents to be reassured that their diabetic children can be autonomous. The day was carried out in a professional way so as to empower the patients. These activities should be organized regularly during a year.

**Keywords:** t1diams, diabetic recreation day, diabetic therapeutic education, type 1 diabetes

Volume 5 Issue 1 - 2018

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**Received:** August 24, 2017 | **Published:** February 19, 2018

## Introduction

Type 1 diabetes usually affects children and young adults. It is a chronic disease, whereby insulin producing cells ( $\beta$  cells) in the pancreas, are auto destroyed.<sup>1</sup> Hence, the treatment of this condition is a challenging and lifelong one, and has to be properly managed. Patients are not properly and fully informed about their disease, and, few have been able to cope with their chronic condition alone. Doctors might be highly qualified at diagnosing and treating diseases, but, they unfortunately fail to allocate sufficient time to educate their patients on their disease.<sup>2</sup> The World Health Organisation<sup>2</sup> has noted that the quality of treatment is not to the level despite efficient one.<sup>2</sup> Moreover, non adherence rates for chronic illness regimens and for lifestyle changes is about 50% since many years.<sup>3</sup>

### Importance of therapeutic patient education (TPE) for type 1 diabetes:

Therapeutic patient education is important for the patients, in order to allow them develop the appropriate skills of self-managing and coping with their chronic condition. Being autonomous, the patients will be able to avoid complications of diabetes, while maintaining a good quality of life. Globally, this will reduce the cost of long-term care of Type 1 diabetes in the society.<sup>2</sup>

## Methods

This observational study was carried out for 1 year (2014-2015). Clearance was given by the managing committee of the nonprofit organization (T1Diams) to carry out the study. The author had an observational role for all the activities organized by T1Diams. On 1st March 2014 a recreation diabetic day was organized which the author decided to described.

## Results

### The role of T1Diams in type 1 diabetes therapeutic education

T1 Diams is a Mauritian non-profit organisation, which has been founded in 2005, with the aim of caring and self-managing Type 1 Diabetes in the island. Its first therapeutic education program was held in Mauritius, with the collaboration of Children's Hospital (Reunion Island) with only 8 Type 1 diabetic patients. It has now reached 241 patients. For the past 10 years, T1 Diams has been effectively developing and executing diabetic therapeutic education.

They achieve their goals by 4 Types of therapeutic educational interventions:

- Regular home based diabetes therapeutic education

- b. Regular diabetic recreation days
- c. Annual winter diabetic camp
- d. Trimestral news bulletin on Type 1 diabetes and an annual national congress on Type 1 diabetes for health professionals.

**Diabetic recreation day (‘T1 Diams en balade’ and ‘enjoy life’)**

The idea of having centers where diabetics can be trained and treated on an outpatient basis is by no means a new concept.<sup>4</sup> T1 Diams regularly organizes a monthly recreational diabetic day for its

patients- ‘Enjoy life’ or ‘T1Diams en Balade’. These two activities are nearly the same as diabetic day care centre in a hospital. In Mauritius it is outside the hospital and is organized by T1Diams. ‘Enjoy Life’ is a recreation day, whereby the members are invited for a whole day from 07hr30 to 16hr, and, where breakfast is included. On the other hand, ‘T1 Diams en Balade’ starts from 09hr to end at 16hr, and, breakfasts are not provided. Since T1 Diams has members all over the island, it has to divide the island in 2 parts- North and South. Each recreation day may thus have a group of either Northern or Southern residents, and each time, a theme is proposed for its therapeutic education. This is illustrated in Table 1.

**Table 1** Themes to be covered on a monthly basis

Month(Year 2014)	Region		Theme
January	North	T1 Diams en Balade	Management of Hyperglycemia
February	South	T1 Diams en Balade	Management of Hyperglycemia
Mars	North	Enjoy Life	Insulin and adaptation
April	South	Enjoy Life	Insulin and adaptation
May	North	T1 Diams en Balade	Nutrition
June	South	T1 Diams en Balade	Nutrition
July			
August			Annual winter diabetic camp
September	North	T1 Diams en Balade	Brief general description of the digestive system,What is Type 1 diabetes
October	South	T1 Diams en Balade	Brief general description of the digestive system,What is Type 1 diabetes
November	North	Enjoy Life	Management of Hypoglycemia
December	South	Enjoy Life	Management of Hypoglycemia

The idea of organizing the activity in the two poles of the island is that people of low socioeconomic status or having a busy schedule and can’t attend it has the opportunity to catch up. The planning of the day is determined well in advance as illustrated in Table 2. About 40 patients normally attend this day and they are divided in 3 groups, each taken up by the 2 diabetes educator and the general practitioner. The morning session, 9hr to 11hr, is allocated to diabetic therapeutic education. Various educational tools are used (written documents, slides, internet, etc.). In the afternoon session, physical activities are organized. Specialized doctors are also invited to do a presentation on a specific subject. These diabetic recreation days give an opportunity for parents to be assured that their diabetic children can be autonomous. The day is carried out in a professional way so as to empower the patients. These activities should be organized regularly during a year, to allow experience sharing. The author describes one of the recreational diabetic day that he attended in the study.

**Observations**

For the Enjoy Life that took place in the north of the island, there were 22 Type 1 diabetic patients who attended the event. The activity was organized on the recreation ground of a well-known sugar estate of Mauritius. Prior to the event, the staff of T1Diams sent a letter of invitation to all its 241 members. 2days before the event the staff calls the members to confirm their presence and their pick up point. Each member has got a pick up point where the transport will pick up the patient and bring them to the recreation site. After having all the confirmed patients, the administration will organizing the number of vehicles needed to transport the patients at different places of the island. Each vehicle will have medical personnel who are present. The

latter will have glucose and bread in case of Hypoglycemia. One week before the nutritionist will meet the administrator and the medical to brief on the menu of that day concerning carbohydrate counting. Then the administrator will organize to buy and prepare the menu. T1Diams called the author to tell him the place and time for the pickup point. He was told that the vehicle will take him at 6h30. When he was in the transport he presented himself to the patients and told them to inform him if ever they are not feeling well. After picking up 5 members in my transport we reached the site at 7h15. There was a reception desk whereby I register myself and was given a bottle of water for the day. 11 patients ≥12years and 11patients <12years. After that I went to the medical room where I check my blood glucose levels as all the patients. I wrote it in a blood glucose logbook. The other patients were doing the same procedure and they did their injection of insulin before their breakfast. Children with a hyperglycemia has allowed to inject insulin before and those having a Hypoglycemia was allowed to have their injection just before breakfast (8h). A injection time- glycaemia table was followed as shown in Table 3.++\_+

**Nutrition**

The nutritionist counselled the patients on the amount and the importance of each food group. There was a variety of items for the breakfast where the patient would choose. For example, 1 egg (1 tablespoon sliced mushroom/¼ tomatoes, herbs),1 x round whole meal Bread (100g), butter, normal Jam- 1 tablespoon, peanut butter, cheese, chocolate cereals, Semi-skim milk- 200ml, tea, coffee and sugar. For lunch we got 100g whole meal Bread, x3 chicken nuggets, 1x boiled egg, 1 slice fat-reduced cheese and salad (lettuce, cucumber and beetroot). After breakfast there was a session of 45minutes where all the invitees presented themselves and was briefed on the program.

That day the theme was 'Brief general description of the digestive system, what is Type 1 diabetes'. The group was divided into two (less than 11 years and more than 12 years) and each one a diabetic educator was responsible. For the younger age group the therapeutic session was organized in a simple language to be understood by the children. For the other group 'the path bread in the body' was used. The site was divided in several paths representing the different path of the body (mouth, oesophagus, stomach, pancreas, insulin, liver, muscle, and intestine and glucose molecules). Everyone followed the path of the 'bread' by walking through different check points representing an organ. The educator was the maestro for that mini trip. Parents and adolescents were allowed to ask questions all along.

**Table 2** Planning of the day

T1 diams en balade		Enjoy life
7h30 – 7h40		Arrival and registration of members
7h40 -8h00		glycaemia, insulin injection
8h00-9h00		breakfast
09h00-09h10	Arrival and registration of members	
09h00-09h20	Glycaemia	presentation of the program
09h20-09h30	Snack	
09h30-09h45		presentation of the program
10h00-11h45	Diabetic therapeutic education	Diabetic therapeutic education
11h45-12h00	glycaemia, insulin injection	glycaemia, insulin injection
12h00-13h00	lunch	lunch
13h00-13h30	free zone	free zone
13h30-15h30	physical activities	physical activities
15h30-16h00	glycaemia	glycaemia
16h00	departure	departure

**Table 3** Showing injection time and glycaemia

Glycaemia (mmol/L)	Time of injection before breakfast/lunch
<3.3	Sugar and then injection just before
3.3-8.2	4 mins
8.3-11	10mins
11.1-16.5	10-15mins
16.5-22	15-20mins

### Specialized session

An optometrist attended the recreation day and did a lively presentation on diabetes and its complications on the eyes.

### Physical activity

After lunch there was a physical activity organized. The insulin dose was adjusted prior to the activity using a well-established protocol. No injection was done in the lower limb as there was a risk of hypoglycaemia during the activity. Furthermore any hyperglycemia more than 14mmol/l associated with ketones in the urine was not allowed to participate. Instead the ketosis state was treated with a bolus of rapid acting insulin. The aim of organizing this session is to empower the members how to manage their Type 1 diabetes with sport.

### Management of diabetes related emergencies on that day

**Hypoglycaemia:** A protocol for hypoglycaemia treatment is available in the medical room. Hypoglycaemia is defined as a blood glucose level  $\leq 3.3$ mmol/l (0.6g/l). Five grams of oral glucose per 20kg of body weight is given and we wait for 10minutes for symptoms to subside. In case there is persistence of hypoglycaemia, we repeat the oral glucose dose. In case of severe hypoglycaemia, the medical staff is trained on the administration of 30% glucose intravenous solution or intramuscular injection of glucagon. Prior to physical activity, the dose of insulin is decreased and a 10g glucose equivalent snack is given.

**Hyperglycaemia:** In case of blood glucose readings  $\geq 14$ mmol/l, the child is requested to do a urine ketone level test. There is a set protocol for the management of hyperglycaemia with or without ketosis. For hyperglycaemia without ketosis, the amount of insulin needed is calculated to correct the elevated blood glucose reading (1 unit of rapid acting insulin = 99/(total dose of insulin over 24h)). In the presence of ketosis, the child is given water to prevent dehydration and a calculated amount of insulin is given to reverse ketosis. No physical activity is allowed during that period. The child's condition is followed up using a flow sheet. If the symptoms persist, the child is referred to the nearby regional hospital.

### Funding

The camp's budget is funded by donations from the corporate sector; no funding from government is available. In France, the association Aides Aux Jeunes Diabetiques organizes camps ranging from 1 to 3 weeks and these are sponsored by the government and private donors.<sup>5</sup>

### Conclusion

Regular recreational diabetic days are important to implement diabetic therapeutic education, as well as to reinforce the experience sharing among the Type 1 Diabetic children. It is one of the rare countries in the world having so much endeavor to help the Type 1 patients and their families.

### Acknowledgments

We are grateful to Mr. Didier Jean Pierre, Mr. Abdullah Dustagheer, Ms. Bianca Labonté, Dr. Baptiste Valle, Dr Severine Boucard and Dr. Zahrah Atchia for their help and general support for this article.

### Conflict of interest

The authors declare that there is no conflict of interest.

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