

## **DIABETES AND PVM ENERGY BAR**

### **1. WHAT IS DIABETES?**

Diabetes mellitus is a group of diseases characterized by high blood sugar levels due to defects in insulin secretion or action, or both. Insulin is a hormone produced by the pancreas and it is the main hormone controlling blood glucose levels. Amongst its functions is a regulatory effect on carbohydrate metabolism because it carries glucose over the cell membrane to be utilized for fuel.

There are different types of diabetes that necessitate different treatment strategies. People with *type 1 diabetes* are unable to produce insulin and need to inject themselves with insulin. In *type 2 diabetes* insulin resistance is present causing a decrease in glucose uptake by body cells as well as insulin-mediated storage of glycogen. Because glucose is the preferred energy source of most body cells, a decreased uptake signals the production of more insulin by the pancreas via a few consecutive reactions. Eventually the pancreas is unable to secrete enough insulin causing insulin deficiency. Type 2 diabetes is normally treated with oral medication. However, uncontrolled type 2 diabetics may eventually require insulin treatment.

### **2. NUTRITIONAL MANAGEMENT OF DIABETES**

The nutritional goals for people with diabetes are:

- To sustain or improve health and quality of life through healthy food choices.
- To establish and maintain blood glucose as near to normal as possible.
- To prevent the harmful consequences of hypo- and hyperglycaemia.
- To address individual specific needs and preferences.

Even though nutrition is an important aspect for people with diabetes, people with diabetes, like the general population, are encouraged to eat a healthy, well-balanced diet that provides all the essential macro- and micronutrients in appropriate amounts. Yet, because carbohydrates typically form the major portion of most meals, the type and amount you eat thereof are important factors in ensuring optimal blood sugar control.

Common dietary carbohydrates include sugars, starch and fibre. While sugars and starch are known to cause a rise in blood sugar levels, many factors contribute to the extent of the rise e.g.:

- The constituent proportions of various carbohydrates in a particular food item and/ or meal.
- Cooking and food processing.
- Other meal components e.g. protein and fat.

### **3. INCLUDING A PVM ENERGY BAR IN YOUR MEAL PLAN**

People with diabetes may wish to include PVM supplements as part of their sport supplement intake or as a tasty treat. The PVM Energy bars are formulated using \*slow, intermediate and fast releasing carbohydrates to provide instant and sustained energy. The carbohydrates found in the energy bars include:

1. Lactose (slow releasing) found naturally in milk powder.
2. Sucrose (Intermediate releasing)
3. Maltose (Fast releasing)

\*According to the South African Glycaemic Index & Load Guide.

The sugar is paired with milk protein (whole milk powder and egg albumen) and fat (whole milk powder) to further increase the digestion time and aid in providing sustained energy (Volschenk & Delpont, 2015).

PVM Energy bars are also formulated according to the Institute of Medicine prudent dietary guidelines to provide a balanced snack. The recommended macronutrient distribution range for carbohydrates is 45-65%, whereas protein falls between 10-35% and fat between 20-35% (Trumbo *et al.*, 2002). The macronutrient distribution of the coated and non-coated energy bars are as follows:

Bar	Coated Energy bar	Macronutrient distribution (%)	Non-coated Energy bar	Macronutrient distribution (%)
Energy (kJ)	788	NA	732	NA
Protein (g)	5	11	5.3	12
Total Carbohydrate (g)	25	54	26	60
Total sugar (g)	20.5	NA	20.6	NA
*Lactose (g)	7.1	NA	7.6	NA
Fat (g)	7.3	35	5.4	28
Saturated fat (g)	4.3	NA	2.6	NA

NA – Not applicable

\*Notably lactose contributes to the total sugar content but not the added sugar/free sugar content.

SEMDSA 2017 guidelines (have not been updated) for individuals with Type 2 Diabetes the recommended daily sugar intake is less than 5% of the total energy thus multiple factors should be considered when including PVM Energy bars in a diabetic's diet.

- Blood sugar levels
- Habitual diet and dietary preferences
- Physical activity duration and intensity of exercise

*Please note that this is only approximate guidelines. For a more individualised diet plan (taking age, length, body structure, gender, dietary preferences, training, etc. into account) or any other nutritional enquiries, please contact our Registered Dietitian for assistance or discuss the inclusion of our bars in your diet with your Dietitian.*

#### 4. REFERENCES

Delpont, L. and Steenkamp, G., 2010. The South African glycaemic index & load guide.

SEMDSA Type 2 Diabetes Guidelines Expert Committee, 2017. SEMDSA 2017 guidelines for the management of type 2 diabetes mellitus. *J Endocr Metab Diabetes S Afr*, 22(1 Suppl 1), pp.S1-S196.

Trumbo, P., Schlicker, S., Yates, A.A. and Poos, M., 2002. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein and amino acids. *Journal of the Academy of Nutrition and Dietetics*, 102(11), p.1621.

Volschenk, P. and Delpont, L., 2015. *Eat Smart for Sport: Maximise sports performance and results through smart eating*. Tafelberg.