



DIABETES

A BITESIZE GUIDE

EVERYTHING YOU NEED TO
KNOW ABOUT DIABETES

TABLE OF CONTENTS

3

INTRODUCTION

4

SO, WHAT IS DIABETES?

6

DIFFERENT TYPES

7

TYPE 1 DIABETES

8

TYPE 2 DIABETES

9

GESTATIONAL

10

SYMPTOMS OF DIABETES

11

LIVING WITH DIABETES

12

SPECIFIC DIET

13

SPECIFIC DIET - TYPE 1

14

SPECIFIC DIET - TYPE 2

15

IMPORTANT TIPS & RESOURCES

DIABETES; A BITESIZE GUIDE

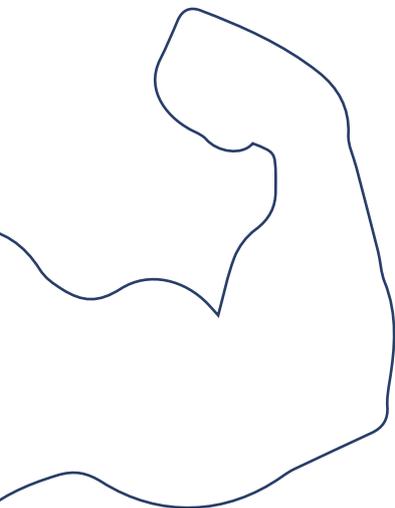
According to the World Health Organization 1 in 11 adults now has diabetes, that's 422 million people. This number will increase to 629 million people by 2045. Half of us with diabetes don't even know we have it.



BUT WAIT, WHAT IS DIABETES?

THE FULL NAME; DIABETES MELLITUS HAS A GREEK AND LATIN ORIGIN – DIABETES, MEANING “GOING THROUGH” AND MELLITUS, MEANING “SWEET”. THIS ROUGH TRANSLATION IS PRETTY ACCURATE; AS DIABETES PRIMARILY AFFECTS THE WAY THE BODY USES, OR “GOES THROUGH”, SUGAR –, OR MORE SPECIFICALLY, INSULIN. THE ORIGIN OF THESE WORDS HIGHLIGHTS HOW LONG THIS HEALTH CONDITION HAS BEEN AFFECTING OUR WORLD. IT WAS ONCE A FATAL DISEASE, UNTIL INSULIN WAS DISCOVERED BY A PHYSICIAN AND HIS STUDENT IN 1922.

“Diabetes prevents the body from being able to transport glucose, produced from the break down of carbohydrates, into muscle cells.”



Diabetes is a chronic condition that revolves around insulin – a key hormone secreted by the cells of the pancreas – that allows the body to use the kilojoules from food obtained through the diet effectively for energy. Diabetes is related to insulin resistance, which can directly affect the body’s ability to metabolise, or break down carbohydrates (including sugars) in our diet.

This insulin imbalance can look different from person to person. Impaired insulin in your body, or somebody you know may infer:

- absolute insulin deficiency
- a lazy release of insulin by the pancreas (where insulin is released)
- an inability of the body’s insulin receptors to detect the presence of insulin
- a reaction in the body that causes it to destroy insulin before it has a chance to do its job.

Diabetes reduces the body’s ability to efficiently transport glucose, produced from the break down of carbohydrates, into muscle cells.

THIS IS IMPORTANT BECAUSE WE NEED GLUCOSE;

- Glucose is the body’s energy currency, or preferred source of fuel.
- When it’s not being used then and there, glucose is stored in muscle cells and the liver as glycogen, allowing the body to access glucose for energy when required (in between meals, during exercise, while sleeping, if fasting, etc).
- Glucose is the primary energy food for the brain and for red blood cells, which transport oxygen around the body.

“Diabetes is a chronic condition that revolves around insulin – a key hormone secreted by the cells of the pancreas – that allows the body to use the kilojoules from food obtained through the diet effectively for energy.”

SO, WHAT ARE THE DIFFERENT TYPES OF DIABETES?

All types of diabetes involve challenges with insulin, but the way in which they develop and consequently effect the body differentiates them from one another.

Type 1

DIABETES

This type is often what's referred to as genetic, or hereditary diabetes. As such, it's more commonly developed at a young age, though it can occur later in life too.

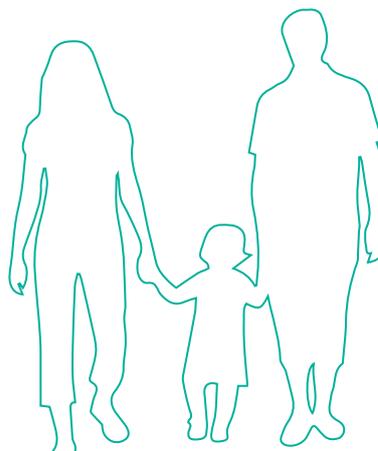
Type 1 diabetes is characterised by the destruction of pancreatic beta cells, which are the cells required by the body for producing insulin. The way this destruction manifests can be either immune mediated or of an unknown cause.

Immune mediated type 1 diabetes accounts for 90 to 95 per cent of type 1 diabetes cases. Immune-mediated diabetes is largely informed by genetics as well, so the two really go hand in hand. Type 1 diabetes involves an abnormal immune response, called autoimmunity, which causes a cascade release of antibodies that program otherwise healthy cells to die – in this case, pancreatic insulin-producing cells.

Type 1 diabetes doesn't just occur overnight; in addition to having diabetes-prone genes, a triggering event like an infection, hypersensitivity, or extreme trauma usually take place in addition to a white blood cell-mediated reaction that also informs genetic predisposition.

Surviving type 1 diabetes requires replacing the lack of insulin resulting from pancreatic insufficiency. If insulin is not replaced, a person with type 1 diabetes' body would enter a catabolic state that would eventually lead to ketosis. While ketosis is safe for short periods of time, chronic ketosis can be extremely dangerous and even cause death if uncontrolled.

This type is often what's referred to as genetic, or hereditary diabetes.



Type 2 DIABETES

Type 2 diabetes is a very varied condition for those who suffer from it; no two experiences are completely the same. It's primarily a condition revolving around hyperglycaemia, meaning high blood sugar, in conjunction with insulin deficiency to some degree. Type 2 diabetes generally affects an older and overweight population, but more recently it has started affecting overweight children and adolescents. For many years, it was believed that type 1 diabetes was the main type of diabetes that was influenced by genetics. Nowadays, even type 2 diabetes, if already affecting first-generation relatives, increases the risk of development by 15 to 25 per cent.

In contrast to type 1 diabetes, which involves absolute insulin deficiency, those with type 2 diabetes can have high, normal or low insulin levels. Despite this, a type 2 diabetes body is resistant to the level of insulin it possesses. As a result, it strives to release as much insulin as it possibly can, creating more insulin than needed and throwing off the balance of the amount of glucose that's actually in the body (which insulin gets to work on storing and directing it where to go). Over time, this can cause the cells responsible for insulin release (pancreatic beta cells) to become exhausted and fail. This would result in the need for supplemental insulin replacement.

If caught early, however, dietary and lifestyle changes that influence circulating glucose can be implemented to help trigger the pancreatic beta cells to begin working well enough on their own again. Type 2 diabetes can also often be managed through medications that helps regular blood sugar control.

Gestational

DIABETES

Gestational diabetes refers to any changes to glucose tolerance that are detected during pregnancy, usually informed by risk factors including family history, being overweight or obese, a high maternal age, and a history of stillbirth and/or spontaneous abortion. All pregnant women undergo testing for gestational diabetes, usually via a fasting glucose tolerance test that measures the plasma glucose level after one hour of fasting.

Gestational diabetes refers to any changes to glucose tolerance that are detected during pregnancy

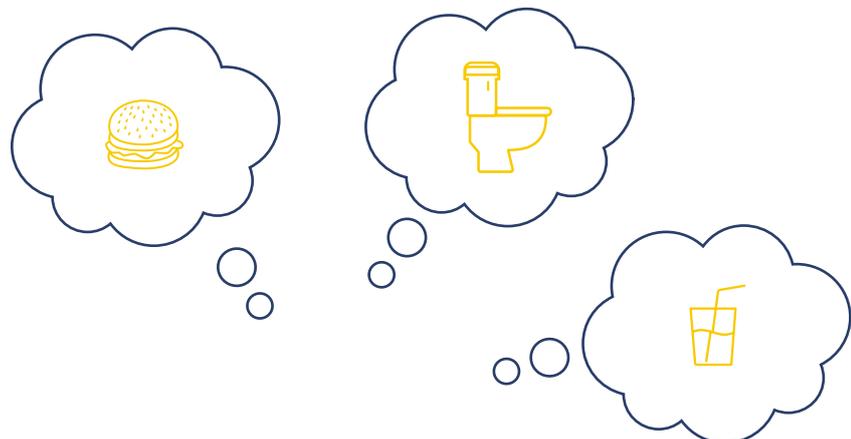


SYMPTOMS OF DIABETES

Common symptoms of diabetes include polyuria (excessive urination), polydipsia (excessive thirst) and polyphagia (excessive hunger).

These three symptoms are the result of high blood sugar levels and high excretion of glucose into the urine. Think of a time when you've eaten something very sweet or sugary – you immediately reach for water. This is what diabetes feels like constantly. As blood sugar levels rise, water is pulled out of the cells and, as such, dehydrates the body on a deep level. Excessive hunger is not usually something that occurs in type 2 diabetes, as it is the result of cellular starvation, typical to type 1 diabetes. Because type 1 diabetes infers complete insulin deficiency, this affects the body's ability to break down and digest all macronutrients, hence cellular starvation. For this same reason, type 1 diabetes typically involves weight loss too.

In type 2 diabetes, symptoms may also include things like blurred vision, fatigue and recurrent skin conditions. Type 2 diabetes is usually associated with obesity or weight gain.



LIVING WITH DIABETES

Diabetes can be managed by medication which encourages the pancreas to produce more insulin. Regular moderate-high intensity exercise can be helpful for diabetes management as well. Especially where type II diabetes is concerned, exercise not only improves weight loss, but has been shown to improve glucose tolerance and insulin sensitivity.

Aside from medications which are prescribed by a treating practitioner, there are some key dietary changes that need to be prioritised to really make a difference, particularly for type 2 diabetes.



SPECIFIC DIET

THANKFULLY, THERE IS NO LONGER A ONE-SIZE-FITS-ALL DIET APPROACH.

Over the years, many diets have been hypothesised and studied for their benefit in helping treat diabetes. The one thing they all have in common is that they're always specific, but specific to the individual person they're treating. Specific amounts of all macronutrient groups (carbohydrates, protein, fat and alcohol) need to be individually strictly adhered to, in order to maintain stable

blood sugar levels and allow insulin to do its job, to control lipid and cholesterol levels, and to improve quality of health overall. Thankfully, there is no longer a one-size-fits-all diet approach, but each specific patient is encouraged to work together to develop a treatment that works with and for them, including the implementation of achievable and progressive goals.



SPECIFIC DIET

FOR TYPE 1 DIABETES

For type 1 diabetes, eating a well-rounded, healthy diet that includes lots of vegetables, fresh fruits, nuts and seeds, high quality fats, lean protein, moderate amounts of grains and starchy carbohydrates, and the occasional treat is ideal. A type 1 diabetic can dose

adjust their insulin depending on the amount of carbohydrate consumed. Low carbohydrate diets are not recommended. Timing is everything for type 1 diabetes, so sticking to regular meal times and always including snacks helps keep blood glucose levels consistent.

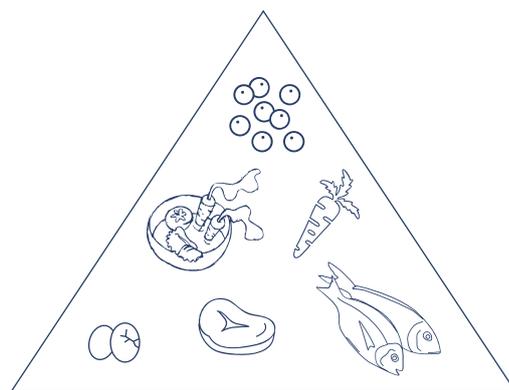


SPECIFIC DIET

FOR TYPE 2 DIABETES

People with type 2 diabetes should focus on consuming whole foods. While type 2 diabetics need to be mindful of their overall carbohydrate intake, carbohydrates need not be totally avoided. Carbohydrate-rich foods also provide a number of key nutrients including dietary fibre, B vitamins, folate, magnesium and a host of others.

Choosing low GI carbohydrates such as wholegrain breads and cereals, fruit, legumes, pasta and basmati rice is best practice and will help to stabilise blood sugar level. It is also crucial that those with type 2 diabetes eat a well balanced diet consisting of fruits, vegetables, nuts and seeds, dairy foods, heart-healthy fats and lean proteins.





TAKEAWAY IDEA

Although it can seem overwhelming to be diagnosed with diabetes, or support someone with diabetes, it is completely manageable with a bit of planning ahead, regular exercise and mindful eating.

We'll continue to add simple sugar-free recipes to our websites where you'll also find other useful articles on managing diabetes.

www.nuviaproducts.com

This E book has been written by Nuvia with a qualified nutritionist and dietician and is based on the latest science-based articles on diabetes. However, data and advice can vary and it is crucial you consult your doctor before taking on any of the advice written in this guide.

REFERENCES

1. www.jbc.org/content/277/26/e15
2. Porth C, 2009. Pathophysiology: Concepts of Altered Health States, Lippincott Williams & Wilkins, Philadelphia.
3. www.ncbi.nlm.nih.gov/pubmed/16280652
4. www.ncbi.nlm.nih.gov/pubmed/29279690
5. link.springer.com/article/10.1007/s00125-011-2204-7
6. nutritionandmetabolism.biomedcentral.com/articles/10.1186/1743-7075-5-36
7. www.sciencedirect.com/science/article/pii/S0163782708000593
8. www.ncbi.nlm.nih.gov/pubmed/1886478
9. apps.who.int/iris/bitstream/10665/204871/1/9789241565257_eng.pdf
10. Nutrition recommendations and interventions for diabetes. (2008). Diabetes Care, 31, S61-S78.
11. National Health and Medical Research Council (2013) Australian Dietary Guidelines. Canberra: National Health and Medical Research Council.

