

## DIABETES:

### A case study with UCS Active PT: David O'Connor (DOC)

#### Q. What type of Diabetes do you have?

**Type 1 Diabetes**, which is often developed in childhood and is sometimes called early-onset diabetes. In Type 1 Diabetes the pancreas does not produce any insulin - the hormone that regulates blood glucose (BG), which causes a person's BG level to become too high. It is very important to be diagnosed as soon as possible as it often gets progressively worse and can, over time, seriously damage the body's organs.

#### Q. What is the difference between Type 1 and Type 2 diabetes? See table below;

	Type 1	Type 2
Age of onset	Usually during childhood or puberty	Commonly over age 35
Nutritional status at time of onset	Commonly undernourished	Obesity usually present
Prevalence	5 to 10 percent of diagnosed diabetics	90 to 95 percent of diagnosed diabetics
Genetic predisposition	Moderate	Very strong
Defect or deficiency	$\beta$ cells are destroyed, eliminating the production of insulin	Inability of $\beta$ cells to produce appropriate quantities of insulin; insulin resistance; other defects

*Comparison between type 1 and type 2 diabetes*

#### Q. When were you diagnosed with diabetes?

Age 14, which is quite a common age to be diagnosed with Type 1 Diabetes. I had a bad flu about a year before I was diagnosed and that seems to have been the catalyst for it. Type 1 diabetes is **often inherited**; therefore you have a greater risk of developing it if it runs in your family. Type 1 Diabetes is also classified as an autoimmune condition.

#### Q. How did growing up with diabetes affect you?

It developed my interest in **health and fitness** and increased my motivation to participate in sport. I had to take 2 injections a day, 1 before breakfast and 1 before dinner. I also had to see a dietician, who gave me a fairly strict eating routine that I had to stick to.

#### Q. How do you manage your diabetes now?

It has **evolved** quite a bit now; I take more frequent injections, which gives me more flexibility. I take 2 types of insulin the long term acting insulin in the evening and several short term acting insulin injections throughout the day. I also test my BG levels 8-10 times per day as I have a very **active lifestyle**.

#### Q. How does a typical day go for you from waking up to going to bed?

I normally wake up around 7:00am and start the day by testing my BG levels. Depending on the result I will then take my first injection of insulin then have breakfast (preferably **protein** based for good BG control). During the morning I will have PT sessions and at some point I may need a small snack (piece of fruit) to keep me going.

After Lunch I may have some more PT sessions then I will normally workout mid-afternoon. I test myself before, during and after exercise. Depending on my pre workout level I may need to supplement with an isotonic drink. After my workout I will have a small meal of protein and carbs.

During the evening I'll have some more sessions and then. I'm normally home about 9:00-10:00pm, when I'll have to test and take some more injections before dinner and sleep - it's not ideal to eat so late but that's the life of a PT!

#### Q. Does sleep affect your glucose level?

**Sleep** is a massive factor and poor sleep has been linked with obesity and **Type 2 diabetes**. Poor sleep can elevate the stress hormone cortisol. As well as making you crave sugar and caffeine the following day, cortisol also blunts the effect of insulin; thus making you more insulin resistant. So, from my perspective in terms of maintaining **good BG control**, getting the right amount of sleep is very important.

#### Q: What else affects your glucose levels?

**Stress, Sleep, Diet & Exercise** are the main things.

#### Q. How does exercise affect your blood glucose?

It depends what type of exercise you do;

**Aerobic exercise:** e.g. cardio workouts are more likely to result in a hypo occurring. I manage this by either stopping after 20 minutes and testing my BG level, or having an isotonic drink. In some case even performing a short series of sprints can help raise your blood glucose if you think you may be about to have a hypo. However, I would always test my blood glucose level first to be sure.

**Anaerobic exercise;** e.g. weights workouts are less likely to result in a hypo as you produce adrenalin, which elevates your glucose levels.

It also depends on other factors such as what time you ate: after lunch for example is a bad time to exercise for anyone, however it is worse if you have type 1 diabetes. You are more likely to have a hypo as insulin is still active in the body therefore it is very important to test your blood glucose levels before, during and after you exercise.

#### Q. What is a Hypo & Hyper?

**HYPO** = LOW Blood Glucose Levels

**HYPER** = HIGH Blood Glucose Levels

#### Q: How can you tell if someone is having a hypo or a hyper?

**HYPO** – look pale, disorientated, start sweating, their hand may start shaking – they need glucose.

**HYPER** – a bit more difficult to ascertain, a sweet smell on their breath – they need insulin.

#### Q. What types of sports and exercise do you enjoy taking part in?

During school and University, I used to enjoy playing football and since becoming a PT I do a **variety** of workouts including running, boxercise, weight training etc.

#### Q. Are there any sporting activities that you cannot take part in as a result of your diabetes?

**Any exercise** up to about an hour is fine, anything more, would require a bit more planning. Type 1 diabetics can perform in pretty much any sport.

#### Q. What types of diet do you have?

I tend to follow a low carb, **Palaeolithic diet** based on natural foods, avoiding sugary high carbohydrate food. I also try to stick to the same types of foods, as I know how my body will respond. I do eat red meats but definitely not before exercising, mainly fish. I usually have a protein based breakfast such an omelette or grilled salmon.

## ***The type of diet, lifestyle & exercise regime of a Type 1 diabetic is actually the way we should all live!***

I try to avoid certain fruits like grapes and melon; the best fruits to eat are berries and also apples and avocados.

#### Q. How do you test your glucose level?

I still use the old finger pricking test strips; however I'm looking into a new blood glucose sensor that would mean an end to jabbing my finger!

#### Q. Are there any good websites or books that you could recommend to people with diabetes, or worries about the risk of diabetes?

Jonny Bowden books:

- The 150 Healthiest Foods on Earth
- Living the low carb life

Miss Jen Grieves:

- <http://missjengrieves.com/>
- <https://twitter.com/MissJenGrieves>

## ***Do you think you may have Diabetes?***

***IF SO, PLEASE CONSULT YOUR GP THEN CONTACT OUR DOC TO HELP YOU MANAGE IT!***

***If you or anyone you know would benefit from this kind of training approach contact:***

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**Appendix:**

<http://www.nhs.uk/conditions/diabetes-type1/Pages/Introduction.aspx>

<https://www.diabetes.org.uk/Guide-to-diabetes/What-is-diabetes/What-is-Type-2-Diabetes/>

[http://www.diffen.com/difference/Type\\_1\\_Diabetes\\_vs\\_Type\\_2\\_Diabetes](http://www.diffen.com/difference/Type_1_Diabetes_vs_Type_2_Diabetes)

<http://awordlover.hubpages.com/hub/Are-You-A-Diabetic>

<http://www.nhs.uk/Conditions/Diabetes-type1/Pages/Causes.aspx>

<http://www.diabetes.co.uk/diabetes-and-sleep.html>

<http://www.pharmamirror.com/news-center/health-tips-research-updates/diabetes-mellitus-treatment-management-type-1-2-pregnancy/>

<http://jonnybowden.com/fructose-turns-to-fat/>

<http://riskscore.diabetes.org.uk/results>

<https://abbottdiabetescare.co.uk/our-products/freestyle-libre>

<http://www.diabetes.co.uk/insulin/insulin-pumps.html>