JABS
DIABETES
COACHING

JUST ABOUT
BLOOD SUGAR

JABS' DIABETES ~~GUIDE~~ JOURNEY

"Look after your diabetes, and your diabetes will look after you."

-Johnny

Introduction

A little bit about me, my story and my diabetes.

I am Johnny, a type one diabetic diagnosed 4th February 2021. I am currently in my final year of my degree in Microbiology and Immunology and have a presence on social media platforms like TikTok and YouTube, having posted my journey with diabetes almost since diagnosis.

I am also the owner of Just About Blood Sugar (JABS); my persona venture for helping others in the hope of improving their chances for better diabetes management.

I have tightly controlled sugars, and I am honest and open about my management methods which stray somewhat from the traditional Dr's advice. Through my methods, I have maintained a HbA1c of 5.1-5.6% since diagnosis, never straying outside of the non-diabetic range.

I am writing this free informative document to aid those with diabetes who may be struggling.

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My Personal Journey With Diabetes

Diagnosed during the COVID pandemic, it was a dark time for me, experiencing all of these horrific symptoms: the four T's. Tiredness, Thirst, Thinness and frequent use of the Toilet. These symptoms had been quietly becoming worse in the background, as I powered on through my school work at home, locked down by the COVID stay at home policy here in the United Kingdom.

This meant seeing a doctor was very hard. Additionally, I was facing quite severe acne as a 15 year-old and had been taking a course of a very potent drug called Accutane. This drug's side effects happened to coincide with the side effects of dangerously undiagnosed type one diabetes. In the week preceding my diagnosis in hospital, I had lost use of my legs walking up the stairs or sitting on the toilet, needing to instead drag myself up using my arms. I had come off the medication for my acne at this stage under doctor's orders. Blood tests were ordered following my doing this.

On 4th February 2021, I received a phone call from my Dr, requesting that I immediately attend the practice offices to receive a fingerstick blood test as my sugars were very high. Upon entering the Dr's office, I had been asked if I needed the toilet so I could have a urine test done alongside – to which I declined. Within a minute of me being in the office, I needed a wee.

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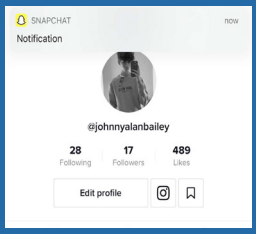
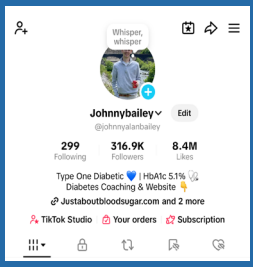
The Dr ordered me and my mum to attend hospital. Leaving the practice office, I was met by my nan and grandad hugging me before we set off, giving us a charger for our phones as the Dr declared there was no time to go home and pick one up. I attended the high dependency ward at our local hospital, where bloods were taken and I was formally diagnosed. My ketones were high, my blood sugars unreadable. The days before this, I was drinking 32 bottles of water every 24 hours. The attending said that this had prevented me from entering deadly diabetic ketoacidosis (DKA).

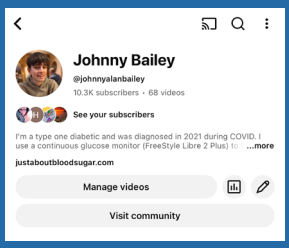
And so my journey with diabetes formally began. A month later, my first TikTok was posted, and so my community began to grow, from just a small seed to a blossoming community where diabetics of all backgrounds and circumstances can share their experiences.

2021-2025

Not just numbers - a community







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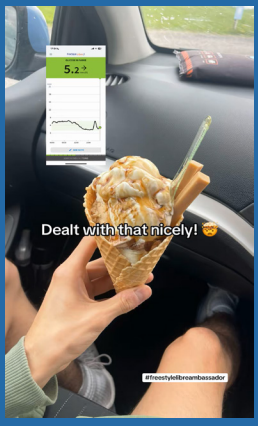
My Sugar Levels

I have now had diabetes for nearly five years. Within this timeline of ups and downs and highs and lows, I have finitely explored all avenues of how diet impacts management: from the NHS Eatwell guidance to more niche recommendations on diabetic nutrition. I have come to accept what works and what is a mere fantasy wrongly and fictitiously spouted to diabetics who need solid dietary advice. In this short infographic, I will come to describe what I have learned in the hopes that you, the reader, can take pieces of the diabetic jigsaw puzzle to fill in for yourself.

I am completely honest and transparent about my sugars on my social media. I suffer less from extreme highs, in fact I never tend to venture above 7.8mmol/L, and certainly not above 10mmol/L in my daily life with diabetes. I achieve this through my diet predominately.

I have not entirely given up the sweet goods. I still enjoy ice cream from the ice cream farm, in fact I order 4 scoops, a huge waffle cone and sauce, and two fudge sticks or flakes. The difference between my style of management is that this event for me is an extreme event and my insulin reflects the extremity of such a carby meal, whilst for some others, this is a frequent occurence and is simply an effect. When I do spike, I ensure with every facet of my management that this spike is just that, a spike. Not a tremendous Everest-like structure on my FreeStyle Libre graph, but just a sharp and punctual spike.



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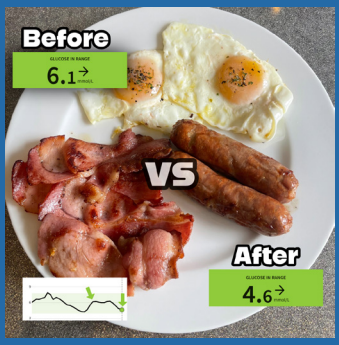
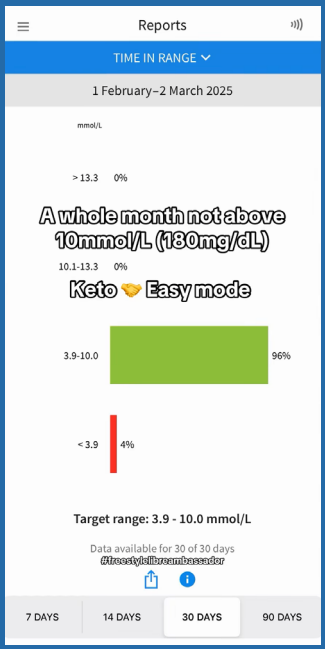
*I am a FreeStyle Libre ambassador. All opinions are my own.

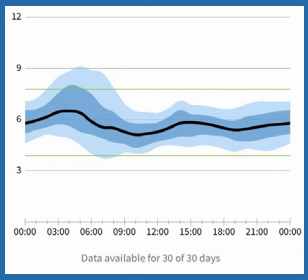
When I am not eating carbs, which is the majority of my days, I am enjoying higher fat and protein-dense foods which still, unbeknownst to some, require insulin to manage sugar levels afterwards.

Some of my favourite foods are roasts, with homemade cauliflower cheese, roasted veg and homemade gravy – all of which would be full of carbs if small tweaks which I make aren't used. I also enjoy breakfasts. Usually, 97% pork content bacon and sausages, with an egg or two. Surprisingly, this meal is the meal which always presents me the biggest spike – and I'll disclose why later in this infographic. Takeaways? Love them, with some adaptation, of course.



My time in range? Often very high, above 80% or even 95% or more.





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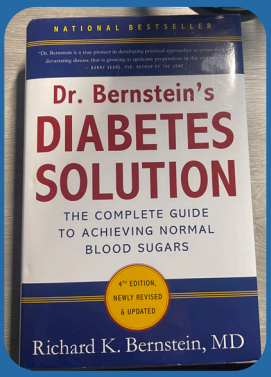
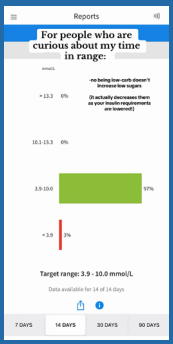
Management Tips

The proverbial 'bread and butter' of my management.

In this section, I will offer 5 top tips that I myself have found invaluable in my management. Some of these are controversial, and others are simply overlooked. These are routed in research and take extensive inspiration from the late Dr Richard Bernstein, a diabetes doctor and educator who lived with type one for 78 years, sadly passing April 15th 2025. His book, the Diabetes Solution prompted me to make the changes I will discuss. Whichever tip raises your eyebrow, I hope it will also reshape your belief system for diabetes as it did for me:





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Dietary Adjustments

Diet and diabetes are often interlinked in a fierce debate about whether it's suitable to question diet or whether diabetics can eat whatever they want if they just inject for it. Simply, the topic never used to be a debate, as people even soon after the discovery of insulin abided by the now largely untold truth that diabetes is a disease of carbohydrate metabolism dysregulation. In any diabetes mellitus case, be it type one or type two, or type 3c or LADA, or any of the other many mellitus cases, the body cannot process glucose metabolically. Thus, the consumption of glucose directly in the form of any dietary carbohydrate (aside from fibre or select sweeteners) is going to cause sugar spikes.

Diabetes is so difficult due to one thing: sugars. Thus, anything that makes achieving better sugars harder should be involved, front and centre, in the diabetes management strategy talks. It's an upsetting truth for some, and I am aware a selection of people reading this will want to close this and read no further. All I would say, is that diabetics have been told the same thing for the last 5 decades, since the policy that diabetics should eat a normal carbohydrate diet in the early 1970s was announced in a New York Times article. Perhaps, it is time for our talking to be open and transparent. It is fair that the debate on diet include all available science, and not simply be a dictation for diabetics.

So, I will be honest. I do not think carbohydrates should be consumed in the same quantity as non-diabetics by diabetics. I actually don't believe they should be consumed in the quantity they are in any culture, diabetic or not.

But why?

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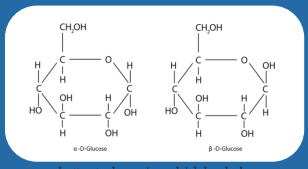
Carbohydrates are a group of molecules that are composed of carbon, hydrogen and oxygen. There are subtypes, such as fibre. Fibre is a carbohydrate that is not digested by the body, and so does not affect sugars. It is a carbohydrate simply due to its structure, it is composed of beta-glucose - an isomeric form of alpha glucose, the purest form of the term we would deem 'sugar'. However, due to it being an isomeric form which the human body has not learnt to digest, it simply 'goes through' our digestive system, to put it less unpleasantly. On the other hand, alpha glucose is absorbed alongside salt in the digestive tract, quickly entering the blood stream where it would ordinarily be processed by the liver.

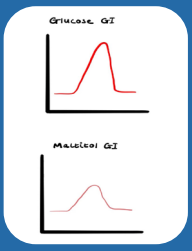


shutterstock.com/search/alpha-d-glucose

There are more subtypes, such as sugar alcohols. These are carbohydrates as they are composed of the same carbon, oxygen and hydrogen atoms, however their structure means the body cannot fully digest many of them, such as erythritol, xylitol, stevia, etc. Some sugar alcohols are similar enough to glucose, that actually they do get digested and impact sugars, such as maltitol. Not all sweeteners are equal. Nonetheless, these are carbohydrates by classification also.

Ingredient	GI (glucose 100)
High Fructose Corn Syrup	58
Table Sugar	58
Maltitol Syrup	52
Maltitol	36
Xylitol	13
Sorbitol	9
Erythritol	0
Sucralose	0

https://healthsmartfoods.com/blogs/news/is-your-low-carb-bar-really-low-carb



So carbohydrates are, for the most part, just a means of energy for the body. However, this energy can be gained through fat and protein. Fat is more than double as energy dense per gram as carbs, and protein is about half as dense once converted to glucose in the body (we'll discuss this later). Fat and protein have the added benefit of being used to make many bodily molecules. Due to fat being more energy dense, you need less of it to feel full and satisfied.

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The confusion around the argument for carbohydrates comes down to the rather manipulative language used in dietary literature. You may have heard of terms such as 'simple carbs', 'complex carbs', 'natural sugars'. These may as well all be synonyms for actual dietary impact. Biochemically yes, there is a difference between sugar you might add to your tea, and a piece of penne pasta. The white sugar you add to your tea is actually a molecule of alpha-glucose attached to another carbohydrate found in small quantities in fruit called fructose. These two molecules come together to form little white specks which we term sucrose, or table sugar. So what about penne pasta?

Penne pasta, or any pasta for that matter, wholemeal, white, etc, are all formed from alpha-glucose stuck to the next alpha-glucose. They're strings of alpha-glucose. There is nothing 'complex' about these carbs, if you are capable of common understanding. It is almost insulting to those who aren't informed about the science that they are deemed as such. So pasta is essentially just sugar. There is a differentiation made between penne pasta and a chocolate bar due to its biochemical makeup. A chocolate bar is made using a lot of free 'unstrung' sucrose and simple alpha-glucose molecules, but for pasta, the alpha-glucose is in a string form.

Where people fall victim is just there. That's a biochemical differentiation, but when you look at how our body digests food molecules such as carbohydrates, it becomes quite clear that there is absolutely no difference between 20g of carbs in a chocolate bar versus 20g of carbs in brown wholemeal pasta. The body grinds down everything into its constituent components, so the biochemical makeup used to differentially term complex vs simple carbs is simply a con outside of scientific classification.

The next term, 'natural' or 'fruit' sugars is also a con. They are naturally occurring and are in fact found in nature, but the body once again doesn't care. It's all broken down into constituent molecular components. For fruit, that's mostly glucose and then a little fructose. Fructose is not a blood sugar, it is a sugar, but it has only five carbons, instead of 6 found in glucose, so the body cannot use it for energy in the same way. It is actually a very dangerous sugar that is stored as fat primarily in the liver, causing non-alcoholic fatty liver disease.
There is often fibre found in fruit. This is not digested. However, do not be fooled into believing that sugar in fruit is different to sugar in a chocolate bar. It is not. In fact, a yellow banana has more sucrose and therefore fructose (sucrose=glucose+fructose) in it than most chocolate bars. Fruits do have nutrients and antioxidants, but a piece of veg such as brocolli triumphs over most fruits in this regard.

In dietary guidelines, the term 'slowly digested' is often used to describe the benefit of string-form carbs, such as starch used to make pasta. Yes, it takes longer to digest but for diabetics, this is probably worse as it means you'll be higher for longer. For non-diabetics, perhaps a slower and lower glycaemic load is better. For diabetics, the difference is negligible, and consumption of any glycaemic load 'how much sugar' will have an effect regardless of form. My strategy is to look at all carbs the same.

A CARB IS A CARB.

"TRY TO THINK OF DIET AS A DART BOARD AND THE MORE CARBS YOU EAT, THE DARKER THE ROOM GETS. YOU MAY AS WELL BE BLINDFOLDED, OR TRYING TO HIT BULLSEYE FACING THE OTHER WAY IF YOU'RE EATING THE RECOMMENDED AMOUNT. WITH SO MUCH CO-STIMULUS, INSULIN DOSES SIMPLY WON'T BE EFFECTIVE. THE SOLUTION ISN'T TO CUT OUT CARBS COMPLETELY, THE SOLUTION IS TO BE MINDFUL AND SENSIBLE WITH THEM."

-JOHNNY

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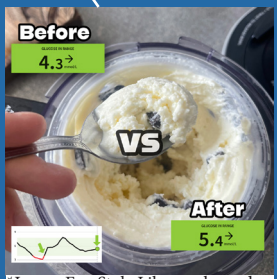
For example, I still enjoy locally made ice cream occasionally, with about 150g of carbs. I could also have a portion of pasta for tea which is about 75g of carbs. For me, I see this: I may as well have half my usual 4-scoop ice cream. This is the truth as carbohydrates aren't an essential nutrient. They're simply a molecule that does nothing outside of serving 4 calories per gram. There is no other nutritional benefit to a carb. The body, diabetic or not, can survive on 0g of carbohydrates a day. 'Carbs are needed for energy' is factually and scientifically wrong. 'Dietary carbohydrates are an easy but unnecessary form of energy for cells in the body' is a more appropriate reiteration of that statement; it's factual, at least.

So, my advice. You don't have to give up carbs like I have. That's not what I am advocating for here in this section. I am advocating for the proper understanding of what carbohydrates are. It is down to the diabetic's personal preference given this information to decide if 300g of carbs (the recommended amount for men in UK) each day is appropriate. I have found for me it is not. It offers nothing more than 4kcals of energy per gram. Well, fat offers 9kcals per gram and is also used around the body for copious amounts of useful processes.

Keto Ice Cream



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Hence, I've sided with fat for my daily diet. Reducing carbohydrates should not be taboo in our community. It should, at least, be in the discussion and have a seat at the table.

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Read more about how I still enjoy sweet treats whilst maintaining near-perfect sugars in my blog "How I Discovered the Secret To Controlled Diabetes Management...".

This can be found on my website Justaboutbloodsugar.com

> *"Let food be thy medicine, and medicine be thy food," Hippocrates once said.*

I enjoy popcorn when I go to the cinema, I enjoy an occasional snack night watching movies at home – and if you've seen my TikTok page, you may know I enjoy the local 'Ice Cream Farm' regularly in the summer, without comprimising my sugars. The key was learning to isolate and understand each treat individually.

In summary, try to think of diet as a dart board and the more carbs you eat, the darker the room gets. The dietary advice is no different here in the UK for diabetics, so 300g carbs each day if you're a man (230g if you're a woman). At this point, if you're nearing the guidance, you may as well be blindfolded, or trying to hit bullseye facing the other way. With this much co-stimulus, insulin doses simply won't be effective, at least in my experience. The solution isn't to cut out carbs completely, the solution is to be mindful and sensible with them.

The Importance of Basal Insulin

Most diabetics that take insulin will take both mealtime bolus insulin and more importantly basal or nighttime or morning time insulin. People often aren't taught the difference between these two forms of insulin, which I believe is truly wrong, so I will help clarify the difference.

When a non-diabetic eats food, they have a two-phasic insulin response. The initial insulin is released by the pancreas upon swallowing the food and begins to lower blood sugars in preparation for the incoming food. The carbohydrates are digested and the glucose and fructose is sent directly to the liver. Here, the pancreas' secreted insulin takes approximately 7 seconds to work. It tells the liver cells to open up and take in some of the glucose. The excess glucose, that won't fit in the full-up liver cells is sent into the bloodstream and to the muscles. After about 2 hours we start receiving protein (amino acids from our gut). These are sent around the body also. Eventually, the glucose is stored in the muscles and any excess that won't fit in the muscles is converted by the liver to something called a triglyceride, a storable form of body fat. This is then stored in special 'fat cells'.

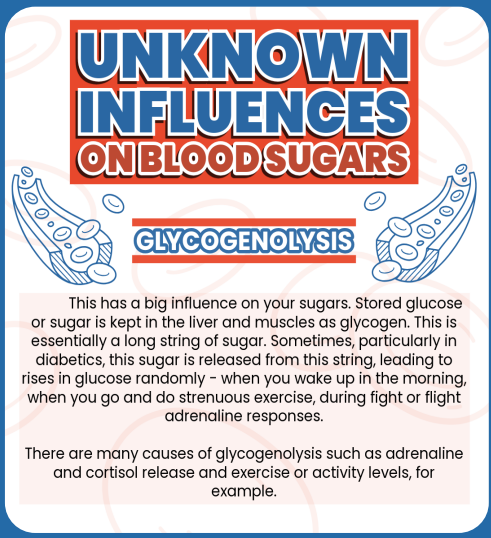
The excess protein that isn't used up around the body comes back to the liver and the kidneys, and is converted to glucose and this then enters the bloodstream, going around to the already-full muscle cells. The liver then converts this glucose once again to fat and stores it in the same way.

"THE CONSEQUENCES OF UNMANAGED DIABETES CAN BE AND ARE OFTEN SEVERE. WHETHER IT RESULTS IN ANOTHER CHRONIC DISEASE, OR POTENTIALLY EVEN LOSS OF THE MOST BASIC THINGS LIKE TOUCH OR SMELL WE TAKE FOR GRANTED, THE COMPLICATIONS OF DIABETES AND UNCONTROLLED SUGARS ARE NOT TO BE TAKEN LIGHTLY."

-JOHNNY

Well the insulin you take for food covers all of the discussed, but what about when you're not eating – how does your body maintain glucose levels throughout the day? Well a few complex processes. Glucose is stored in the liver and muscles in a string-form called glycogen. This is slowly broken down throughout the day and released into the bloodstream as your cells use up glucose for everyday tasks. This is a process that has to be tightly regulated due to the biochemical pathways that it requires to happen. You see, processes aren't just 'known' to the body, your brain isn't controlling how much glycogen is being hydrolysed (broken down) into glucose and released into the blood. Instead, a complex gradient of molecules is controlling this and insulin is central to all of them. Without insulin, the body has too much of a signal that tells the liver to release glycogen, meaning sugar levels go up.

Then there is the process of making glucose which the liver and kidneys both carry out each day. That's right, your body makes its own carbohydrates through gluconeogenesis – hence why carbs aren't essential. Without insulin, the same signals that tell the body to break down all its stored carbs (glycogen), tells the body to make glucose. This is because all of these processes rely on insulin as an invigilator, or a kill switch. Notably, if insulin is there, these processes cannot go past a certain point and will not affect sugars as drastically as they can.



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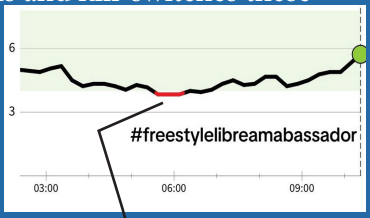
So what insulin does this? Well, background or basal insulin. If basal insulin is too low, you will go high during periods even when you're not eating or you could even be sleeping. It's often basal. Basal insulin is formulated in such a way that when you inject it, it precipitates meaning it becomes solid under the skin. With the addition of zinc in the formula, the insulin is then gradually absorbed by the bloodstream. Thus, it is a careful balance between ensuring there is enough basal to prevent these processes running away with themselves but also ensuring it is not in a quantity which will mean too much is absorbed and it overwhelms and kill-switches these processes entirely, making you go low.

A noteworthy point, is that basal insulin isn't a one and done, and it isn't a formula. You may hear weight being used however outside of just getting diagnosed, this isn't really as effective as simply increasing or decreasing your basal depending on if you are going high during sleep or fasting or not. Learning your basal amount based on your body's needs, and not your doctor's weight calculations is crucial as basal needs change depending on things such as insulin resistance, which increases each day you eat carbs, or decreases each day with exercise. You need to be able to make these adjustments yourself, and learning your needs is pertinent to better management. This is because if basal isn't just right, your sugars will not be either – and daily adjustments are often required depending on diet and activity.



This is a good example of when I injected too much basal.

"DON'T BE FOOLED BY A TITLE, BE EMPOWERED BY YOUR OWN KNOWLEDGE. I CAN HELP UNLOCK THIS FOR YOU, AND EXPLAIN MANY OF THE INTRICACIES OF DIABETES' EFFECTS ON YOUR BODY. I NOW QUESTION MY DOCTORS AT MY CLINIC APPOINTMENTS, NOT THE OTHER WAY AROUND. YOU COULD TOO."

-JOHNNY

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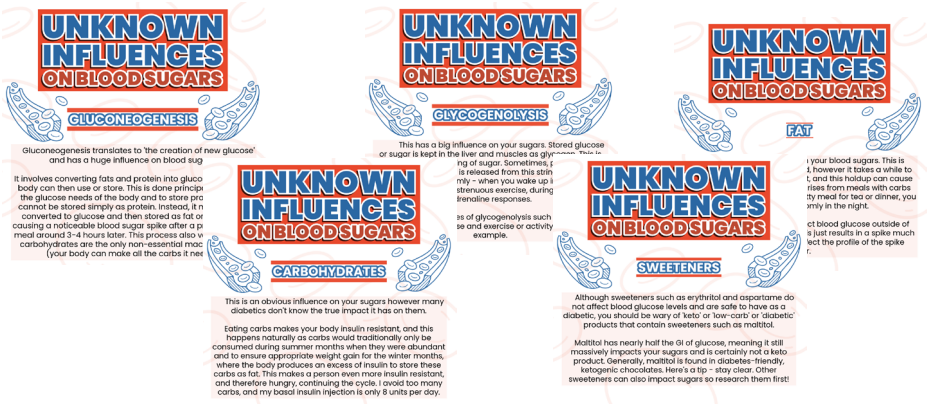
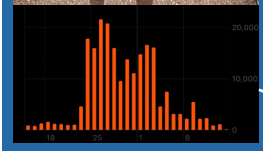
Find out more about
"Unknown Influences on Blood Sugars"
by visiting my social media pages. I have posted
several videos breaking down the top five
unknown influences in detail:



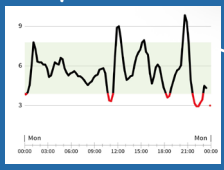
The Reality of Exercise

Exercise is often praised as being the key to good health. It is true that exercise has been correlated with overall health outcomes. However, if you've ever tried to lose weight through just exercise, you'll often find it isn't overly achievable. More recently, ex-gameshow The Biggest Loser has headlined the study into 14 of the show's participants that suggested that exercise as a sole driver for weight loss led to metabolic disorder and slow-down.



My steps per day

Recently, I was very privileged to experience Florida's Disney World and Orlando theme parks, walking 20,000 steps each day, and for me, not eating too much at all outside of a meal a day with a snack or two at night. It was interesting as I expected my insulin needs to decrease beyond an already low 13.5U units a day with all this added exercise. What actually happened was the opposite, my insulin near quadrupled to 30 units. The reason? I was indulging in more carbs than I would usually – a tub of popcorn one night, some keto burger buns the next, etc. I am thinly built anyway, but without even looking at a scale, I could tell I was gaining weight despite my 10-fold increase in usual activity levels.



My sugars after increasing to 30U despite exercise

The reason I could tell, was because I was injecting more insulin. Insulin is an anabolic hormone, meaning it causes weight gain. It is one of the few hormones that are directly responsible for it. It also taught me that exercise pales in comparison to diet when it comes to its importance in insulin resistance.

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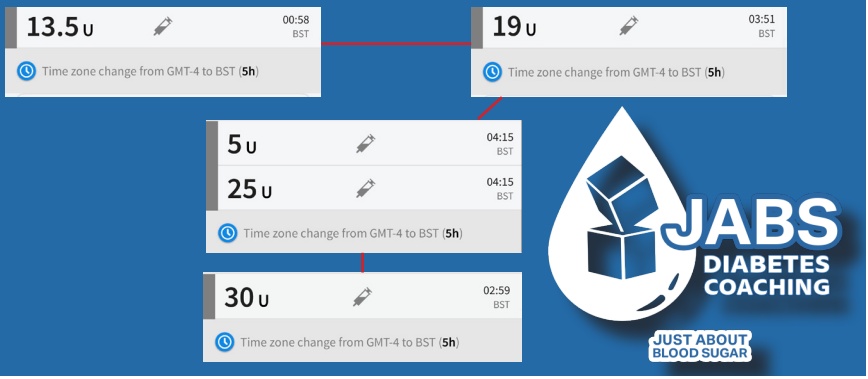
*I am a FreeStyle Libre ambassador. All opinions are my own.

It's generally true that insulin resistance is lowered by exercise. This is simply because the body requires more energy post-exercise to repair the damage the exercise has caused. For example, when building muscles, they have to first be damaged for the body to rebuild them stronger. This requires energy to do, and energy, for the most part, requires insulin to be unlocked and used. Hence, the muscle cells become more receptive, or sensitive, to the actions of insulin on their GLUT4 receptors (where insulin binds the cells).

However, this only really works to a degree. Diet can achieve the same insulin sensitivity. I am not opposed to exercise, and have in the past exercised daily. Frankly, it doesn't entertain any feeling of mine outside of boredom, and unfortunately that is the case for many people who don't wish to devote lots of time in the gym. My workaround was my diet, increasing my fat consumption, lowering my carbs, and increasing my protein moderately meant my basal insulin has come down to 8U-13.5U a night. Interestingly, daily exercise did not decrease this basal need further despite anabolic muscle growth and strength training. So, if you can entertain time in the gym, it will help lower insulin resistance and is great for overall wellbeing and self-worth, to a degree. If you're like me, and you aren't too much more willing to exercise outside of basic walking and (admittedly infrequently) running on a treadmill, then diet can help you achieve the same insulin sensitivity, at least in my own experience. I believe 8U-13.5U a night is a very low amount of insulin, and exercise did not decrease this further.



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So the story on exercise is that it isn't essential for good blood sugars. It's health-promoting for sure, but not essential for stable sugar levels, at least in my own experience. Underlying this is of course, evolution.

As primal humans, we would only become insulin resistant during the summer, where fruits would be available to consume. We would consume them, the carbohydrates would make us more insulin resistant, we would eat more as a result and gain weight. Over winter, we'd burn off these reserves. However, our activity levels would be the same in summer as in winter, exercise is not a safe driver for weight loss as diet is. We see examples of this throughout nature. Snow foxes that live in artic temperatures should need an extreme amount of calories to maintain temperature and activity levels however they get away with this by eating small but calorie dense foods like tree nuts. So, exercise is not as much of an exertion of energy as you may think. Diet is where health originates, and any additional intervention like exercise is supplementary for that health, at least in our current environment.

So, if the idea of being an 'active, healthy' individual is putting you off starting to get control of your sugars - don't let it. It's not necessary if you don't wish to do it. The important thing is getting started. The addition of exercise would be beneficial but considering the amount of people this likely puts off taking control of their health, simply for the thought of having to do strenuous exercise makes it something that isn't worth being a requirement for you to achieve stable sugars, but great if you wish to incorporate it.

"WHETHER WE LIKE TO ACKNOWLEDGE IT OR NOT, DIET AND DIABETES ARE AS INTERWOVEN AS NIGHT AND DAY. DIET IS IMPORTANT IN EVERY FACET OF DIABETES MANAGEMENT AND ONLY IN MAKING NECESSARY ADJUSTMENTS AND DECISIONS REGARDING DIET AND NUTRITION, CAN DIABETICS TRULY ACHIEVE BETTER BALANCE AND CONTROL."

-JOHNNY

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The '42 Influences'

If you have been on TikTok recently or any social media for that matter and you happen to follow diabetics, then you may have seen the post breakdown of the '42 influences' on blood sugars. It's a good post that demonstrates the background influences on our sugars. But it isn't a ticket to say that stable sugars aren't achievable. Ultimately, whilst some factors such as expired insulin do affect blood glucose levels, I myself have never had a case of expired insulin – so in my circumstances it is rather a rarity. I have spent a week in 40+ degree Celsius in Rome with nothing but a normal non-insulated insulin case, and still failed to expire my insulin. There are indeed many influences, but to simplify, it is mainly a factor of whether you have adjusted insulin appropriately. Insulin is the thing that diabetics can absolutely control.

If you have sunburn, you should be increasing your basal insulin in response to the insulin resistance you are going to develop. If you have the dawn phenomenon, you should be injecting more basal or taking insulin immediately upon rising. If you have stress or illness, you should be raising your basal. It's true, there are many influences. But the moment your sugars begin to rise, should be the moment insulin is taken. What controls sugar levels in non-diabetics when they have a sunburn? Insulin.

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What controls the dawn phenomenon in non-diabetics when they also have a dawn phenomenon? Insulin. In terms of some of the 42 influences such as dehydration – you would have to be quite severely dehydrated and even then, it wouldn't have an extreme impact on your sugars outside of maybe a mmol/L. It is great to visualise how many influences there are on sugars, but for diabetics, there is really only one influence that matters – have you taken insulin or not? If it can be controlled in a non-diabetic, it can be controlled in a diabetic, with insulin.

That's at least, my take on it, which will surely anger a few.

"DIABETICS OFTEN GET LOST IN THE MYRIAD OF FACTORS THAT IMPACT THEIR BLOOD SUGARS, LEADING TO ABANDONMENT OF ANY SENSE THAT DIABETES CAN BE AND SHOULD BE CONTROLLED. DIABETES RESTS ON KEY PILLARS, LIFESTYLE, MEDICATION AND BALANCE. BALANCE IS THE KEY. I ENJOY ICE CREAM, POPCORN AND OTHER SUGARY SNACKS EVERY ONCE IN A WHILE, BUT I ALSO UNDERSTAND THAT I LIVE WITH A DISEASE THAT RESULTS IN COMPLETE IMBALANCE OF MY BLOOD SUGARS, SO I RESPONSIBLY LIMIT MY CONSUMPTIONS OF SUCH HIGH-RISK FOODS. HOWEVER, THAT IS BALANCE, NOT DEPRIVATION, WHICH SOME DOCTORS AND HEALTHCARE TEAMS ARE QUICK TO CALL OUT."

-JOHNNY

Find out more about the complications of uncontrolled and unmanaged diabetes from my blog: "The Harsh Reality: Diabetes Complications You Need to Know".

This can be found on my website at Justaboutbloodsugar.com

Diabetic Retinopathy

Another common complication of diabetes, diabetic retinopathy is the destruction of small blood vessels in the retina of the eye, which begin to leak into the surround eyeball tissue causing blurred vision, floaters, or light sensitivity amongst other sight-related issues. The cause? Mainly high sugars. Retinopathy can also be quickly brought on by a rapid reduction in HbA1c, however how this works is not yet fully understood. Furthermore, retinopathy can be made worse by rapid HbA1c reductions leading to what's been termed as early worsening diabetic retinopathy (EWDR). This is why gradual reduction of HbA1c is better than rapid drops if you have early-stage retinopathy already.

Diabetic retinopathy, like many afflictions caused by diabetes, is not reversible but can be halted in its tracks with adequate glucose control and management. However, considering over half of people with diabetes develop some form of retinopathy, according to the national eye institute, these risks of this disease are not conveyed adequately to us diabetics. Prevention methods include maintaining a stable - yes stable, HbA1c, not just a lower HbA1c but a stable. Glucose levels above 7.8mmol/L are extremely toxic to the body and as soon as the body is overcome with glucose, damage in these sensitive capillaries begins to occur, causing leakage in the retina.

Many countries, such as the UK, offer yearly or two yearly diabetic eye screenings to catch retinopathy early in its tracks. Do not be fooled by realisation though; there is no treatment for retinopathy outside of healthy sugar readings and levels. Just because you know you have it, does not mean your eye health is safe. It's crucial to maintain balance within your sugar levels.

Diabetic Nephropathy

Organs in the body are all arguably as important as each other. Without your heart, you would have no blood circulation. Without your liver, you would surely and quickly die from some sort of chemical or molecular poisoning, not be able to digest fat, not be able to maintain fasting sugars, the list goes on. Without your pancreas, you cannot regulate sugars or digest many foods. Without your stomach, you cannot properly digest food or protect yourself from foodborne pathogens. Without your intestines, you cannot absorb what you eat. Without your brain, you cannot do anything. Without your kidneys and you would succumb to acidosis or toxin buildup. Yet we find ourselves with little function in our kidneys, or complete lack of it, in diabetes nephropathy, a disease characterised by high sugars or blood pressure damaging the filtering units (nephrons) of the kidneys, causing lack of function in the two organs. The treatment? Often dialysis. If caught early, you are lucky and can manage it through lifestyle tweaks such as diet and exercise and sugar level management.

Nephropathy manifests with several classic telltale signs which often lead to quick diagnosis if you have diabetes already diagnosed:

- Swelling in peripheries
- Urination changes
- Fatigue
- Weakness
- Loss of appetite
- Nausea
- Shortness of breath
- Hypertension

Achieving Balance

So what's the solution? I have deeply explored many of my tips. For dietary adjustments, I tried the EatWell guide recommended by the NHS and used to formulate NHS guidelines for diet and nutrition for diabetics. It did nothing for me except keep me higher for long as all of the 'complex whole' carbs took longer to digest, though the spike was not as high. However, my time in range suffered as a result of slower and a longer-burn digestion, which meant glucose was entering my bloodstream for hours upon hours. I tried vegetarian, and failed due to all of the added sugars. In fact, I was vegetarian from 13 years of age up until a few months after diagnosis when I realised I was jeopardising my health eating the vegetarian way: full of carbs and little whole protein. I tried the heart-healthy pescetarian diet, and again was hardly ever full, always snacking instead.

I tried lower carb, and began to see a difference. I replaced the calories lost from my carbs with fat. I was fuller for longer and my sugars were stable as I wasn't constantly needing to supply my body with carbohydrates. Then, I developed further and branched into keto, where my time in range improved even further, and my basal insulin dropped significantly, day after day since starting ketogenic eating: high fat, moderate protein, less than 30g of carbohydrates a day, usually just 10g or so. I also really began to enjoy my foods, as I wasn't feeling the guilt of consuming foods knowing my sugars would be impacted afterwards. I then tried eating whole foods, excluding useless food groups like pasta and rice still, but focusing on incorporating things like deep-fried veg, adapted roast dinners. I enjoyed potatoes cooked in high saturated fat oils like beef tallow or lard, as this would not spike me to the moon and back.

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Throughout my whole journey, I posted TikToks about all of these discoveries, many fell of deaf ears. I now eat mostly keto, very few carbs each day. What about sugary treats? I have the sweetest tooth possibly in existence, and I wholeheartedly stand by that statement, I just love sweet foods. Yet, eating high fat, I don't crave them. And when I do? I enjoy something sweet, which is usually once in a blue moon as I never get cravings. My particular favourite is ice cream, which I dose a lot for. I posted a video showcasing how because its one of few sweet things I eat, and when I get the craving I go for it, I have learned the exact amount of insulin I must take beforehand. Oftentimes, I don't even spike above 7.8mmol/L even though it contains 150g of carbohydrates, at least.

This is what I would call perfect balance with diabetes, where you can enjoy sweet foods without jeopardising health and sugars. I personally stand by the belief that carbohydrates have no place in a diabetic's diet outside of fulfilling those absolutely acceptable and completely normal sweet cravings every once in a while.

I believe adequate dietary adjustments lead to stable sugars, which leads to occasions where having a sweet dessert or treat at the cinema or at a restaurant or an ice cream farm visit on a weekend, will only affect time in range negligibly. Insulin works better when we go easy on carbs. You don't have to give them up, but reducing them, I would say is key to diabetic management, truly.

For those that maintain a high amount of carbs in their diet, extra attention to small details such as basal insulin changes depending on carb intake during the day, the timing of injections and the type of fast-acting insulin you're using are all that more important to consider.

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3 Must-Knows

Informative facts that will reshape your thinking and understanding of diabetes.

In this final section, I will explain three big-hitters, that I have touched upon or made reference to already in this booklet, in more detail. This will benefit those that enjoy having more depth to their knowledge.

1. Protein is converted to glucose.

This is always the biggest and most important unknown influence on diabetes. Many people who eat moderate amounts of protein-rich foods will be impacted by this process.

Protein is made up of many amino acids, and most of these amino acids are glucogenic – that is they can be used by the body, specifically the liver and the kidneys to produce new glucose in a process called gluconeogenesis. This is a fairly slow process that occurs in most part about 2-3 hours after protein-rich foods are consumed.

Many people eat too much protein in their diet that is useful, and amino acids cannot be stored directly by the body like carbs and fats can. Therefore, the body converts excess protein (something as simple as a chicken breast could result in an excess of amino acids in the body) into glucose. This glucose is then ordinarily stored, however in diabetics who don't inject for their protein, this enters the bloodstream, increasing sugars often 'randomly' after a meal.

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2. The mechanisms behind insulin resistance.

Insulin resistance is a term often used in today's health industry. The truth is, insulin resistance is not something you have or don't have. It is a constantly evolving spectrum, and a natural state that is routed in evolution. The underlying biochemistry behind insulin resistance isn't fully understood. It is thought that cells become more resistant to the action of insulin. Normally, when insulin binds a cell on its GLUT4 receptor, it triggers 'transporters' to enter the cell membrane, which allow glucose into the cell. During severe insulin resistance, this process becomes less and less effective, leading to insulin not actually lowering blood glucose levels as much as it would in a more insulin sensitive individual.

There is no current agreed consensus on what causes insulin resistance. However, obesity, lack of exercise and diets high in fructose ('natural fruit sugars') are attributed to causing insulin resistance. Personally, I believe it is carbohydrate consumption for the following reasons: when I eat less carbs, I need less basal insulin. My insulin needs (and therefore my insulin resistance) is lowest when I am eating the lowest amount of carbs in my diet. If I eat carbs regularly, my insulin can go up to 40U a night instead of just 8U. Secondly, insulin resistance makes sense from an evolutionary perspective as insulin resistance causes a person to eat more foods, and due to higher levels of circulating insulin, the person will store more of the calories they consume as fat. This is because insulin is responsible for fat storage mechanisms.

Carbohydrates are naturally available in the summer, when fruits and veg are produced by plants. This means in our evolution, humans have had the highest amount of carbs in the summer, where temporary insulin resistance would mean they gain weight.

This would then be beneficial for the winter, where fat could then be used for ketone production and therefore energy needs. There are so many lifestyle influences that could cause insulin resistance, so it makes sense to go back to basics – our evolution – as a guide for its causes.

3. Why HbA1c is important.

HbA1c is a measure of how glycated blood haemoglobin is. Haemoglobin is a molecule found in the structure of red blood cells that is responsible for binding oxygen. This means red blood cells can carry oxygen to cells all over the body. Glucose as a molecule, is rather sticky. If you have ever spilt a full-sugar coke or had something sweet, you may have noticed that what's left is a sticky residue. This is because glucose sticks to other molecules and is fairly reactive. Inside the body, this is no different: glucose sticks to red blood cells. The more glucose in the blood, the more will stick to the red blood cells.

HbA1c is a measure of this. When HbA1c is higher, it suggests that glucose is not only sticking to red blood cells more, but also it will be sticking to other molecules in the body, such as cholesterol, blood vessels and organs. Damaged cholesterol is responsible for causing heart disease and plaque buildup in the arteries. Damaged blood vessels are causative in diabetic diseases such as diabetic retinopathy, neuropathy and nephropathy. Damaged organs can lead to kidney failure or cirrhosis. In fact, all of the complications of diabetes are attributed to blood glucose levels.

Maintaining a lower HbA1c, or at least aiming for a lower HbA1c can reduce the amount of glucose in the blood, reducing the chance of the damage glucose causes by sticking to other molecules (AGEs).

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