A GLOBAL APPROACH TO RESEARCH

Type 1 discovery

Issue 90/ March 2022 – June 2022

Lawrence, actor and singer

shares his experience of living with type 1 and diabulimia

JDRF International announce historic partnership

LADY JUBIE WIGAN

The motivation for raising £3m for JDRF research

New NICE draft recommendations for widened access to technology

The Scottish Health Technologies Group (SHTG) has taken on board recommendations from JDRF

JDRF IMPROVING LIVES. CURING TYPE 1 DIABETES.

Join us in finding the cure for type 1 diabetes

YOU CAN DO IT

WITHOUT LANCETS[1]

NOW WITH OPTIONAL GLUCOSE ALARMS

The FreeStyle Libre system is the #1 sensor-based glucose monitoring system used worldwide[2]

OPTIONAL GLUCOSE ALARMS
Know the minute your glucose is too low or too high

NO FINGER PRICKS[3]
You can manage your diabetes painlessly[4]

DISCREET & CONVENIENT
Check your glucose anytime[5], anywhere[6] with a simple 1-second scan – even through clothing

FreeStyle Libre 2
FLASH GLUCOSE MONITORING SYSTEM

ALARM. SCAN. ACT.

Start your 14 day free trial today, please visit:
Sample.FreeStyle.Abbott

life. to the fullest.®
Abbott

Images are for illustrative purposes only. Not actual patient or data.
1. Scanning the sensor does not require lancets. **2.** Data based on the number of users worldwide for the FreeStyle Libre system compared to the number of users for other leading personal use sensor based glucose monitoring systems. Data on file. Abbott Diabetes Care, Inc. **3.** Finger pricks are required if glucose readings and alarms do not match symptoms or expectations. **4.** Haak, Thomas., et al. Flash glucose-sensing technology as a replacement for blood glucose monitoring for the management of insulin-treated type 2 diabetes: a multicenter, open-label randomized controlled trial. Diabetes Therapy 8.1 (2017): 55-73. **5.** 60-minute warm-up required when applying the sensor. **6.** Sensor is water resistant in up to 1 metre (3 feet) of water for a maximum of 30 minutes. Do not immerse longer than 30 minutes. Not to be used above 10,000 feet.

We ask you

What are your top tips to help manage type 1 during Easter

5

Can you grow new beta cells from a sample of a person's own skin? 12

Read this online

Get the latest edition of *Type 1 Discovery* at **jdrf.org.uk/discovery** to find out how

A word from Karen

A global approach to research

At a point in time when international cooperation and relationships are at the front of our minds, it seems fitting to celebrate JDRF's unique global setup. When JDRFI was first established in the US, the charity's founders recognised that the fastest way to find cures for type 1 diabetes was to work with the best researchers, no matter where they were based in the world.

This is why today JDRF consists of six affiliated charities across the globe, all working together to raise funds and channel them into the most collaborative and promising international research, regardless of location. Together with our affiliates we fund world class research in 19 countries and we're proud that many British researchers are among the top investigators to receive JDRF funding.

I'm delighted to be able to say that our global approach to research is working. In this issue of Discovery we share the news of groundbreaking developments in beta cell technology, which brings us closer to a world without intensive daily insulin treatment and blood glucose management.

While research into cures progresses, treatments developed and funded by JDRF continue to become more accessible. We were thrilled to announce the life-saving news that JDRF International will work with partners to deliver affordable insulin across the USA from 2024 to everyone, no matter what their insurance status is.

Closer to home, we hear from Jubie Wigan, whose daughter is soon to start on an artificial pancreas through the NHS. She tells us about her experience of caring for someone living with type 1 and the life-changing difference that technology can make.

Karen Addington
Chief Executive

Managing Editor: Amy Sommariva
Production Editor: Lauren Ash
Contributors: Jubie Wigan, Duke Al Durham, Melissa Blaik, Lawrence Smith, Beth McDaniel & Ellen Watson, Conor McKeever, Angel Strachan
Cover picture: Jubie & Aliena. The Times / News Licensing @katiewilson.photo as featured on pages 6 and 7

Join us on social media

jdrfuk
jdrfuk
jdrf_uk

These foundations and trusts are supporting the following projects:

The Steve Morgan Foundation
Neuroimaging Hypoglycaemia Awareness
Dr Pratik Choudhary – King's College London

Can high-intensity exercise combat hypo-unawareness?
Professor Rory McCrimmon – University of Dundee

Human islets for basic research
Professor Paul Johnson – University of Oxford

Harmonizing biomarkers in clinical trials of ustekinumab
Dr Timothy Tree – King's College London

Improved, cost effective prediction of type 1 diabetes in early life using combined prediction models
Dr Richard Oram – University of Exeter

Exploring the translational potential of the NPY Y_4 receptor for treating type 1 diabetes
Dr Gavin Bewick – King's College London

Clinical trials in the Type 1 Diabetes UK Immunotherapy Consortium: bigger, smarter, faster
Professor Colin Dayan – Cardiff University

The beta-2 score and beyond: new composite outcomes measures of islet cell function for use in clinical trials
Professor Colin Dayan – Cardiff University (Beta-2 score)

The Alan and Babette Sainsbury Charitable Fund
Beta cell turnover in patients with long-standing type 1 diabetes
Dr Richard Oram – University of Exeter and Professor Yuval Dor – The Hebrew University - Hadassah Medical School

The Cadogan Charity
Using deep learning on retinal images to predict complications and therapeutic responses in type 1 diabetes
Dr Helen Colhoun - University of Edinburgh

Garfield Weston Foundation
Accelerating the Adoption of Type 1 Diabetes Treatments

The Mason Le Page Charitable Trust
Exploring the translational potential of the NPY Y_4 receptor for treating type 1 diabetes.
Dr Gavin Bewick – King's College London

To find out about all the projects we fund, visit **jdrf.org.uk/research**

Recommendations for closed loop systems in Scotland

The Scottish Health Technologies Group (SHTG) has taken on board recommendations from JDRF's evidence around the benefit of closed loop systems for people with type 1 diabetes

These recommendations, which have been presented to NHS Scotland in a new report, aim to reduce inequalities and widen access to this innovative diabetes technology. The SHTG's report has included JDRF's suggestion for everyone with type 1 diabetes to have detailed discussions with their clinicians regarding the suitability of closed loop systems for their personal circumstances. The report then recommends the technology should be made available to people who could experience clinical benefits from it, for example improved HbA1c or reduced hypoglycaemia. Additionally, JDRF is pleased to see the proposal that anyone whose quality of life is likely to be improved by use of this system should also be able to access it, if the recommendations are accepted. This patient-centred approach is a pivotal step towards equal access to diabetes technology in Scotland.

PROFESSOR SUSAN WONG HONOURED FOR OUTSTANDING RESEARCH

JDRF researcher Professor Susan Wong has been recognised for her pioneering contributions to type 1 diabetes research. Professor Wong, who is based at Cardiff University, studies the causes of type 1 and how immunotherapy could cure or prevent it. She was awarded the 2021 Gerold and Kayla Grodsky Basic Research Scientist Award for this research.

Replacement beta cells show promise in early trials

The first person to receive a new stem cell-derived therapy for type 1 diabetes needed 91 percent less insulin each day three months after receiving it

Professor Doug Melton

The therapy, underpinned by JDRF research, replaced the person's lost insulin-producing cells with ones grown in a lab from stem cells.

After 90 days, tests suggested that the trial participant was once again making their own insulin, 40 years after first being diagnosed with type 1.

Following this success, researchers at pharmaceutical company Vertex hope to enrol a further 16 participants on the trial, which is based in the US and Canada.

Although these initial participants will need to take medicine to stop their immune systems rejecting the new cells, the trial will show whether the cells can successfully make insulin when in the body.

This will lay the groundwork for future versions that implant the cells in a protective device, removing the need for the immunosuppressive drugs.

The finding is the latest step towards curing type 1 diabetes with replacement beta cells. In 2021, US company ViaCyte showed that its replacement cells could also produce insulin when implanted in the body. ViaCyte also plans to develop gene-edited cells that may be more resistant to the immune system.

Breaking News - JDRF International Announcement

We're delighted to share that JDRF International (JDRFI) have announced a historic partnership which will provide affordable insulin to everyone in the USA from 2024, regardless of income or health insurance.

JDRFI and other funders will underwrite initial development costs so that CIVICA – a not for profit generic drug manufacturing company – can manufacture and distribute low cost bio-similar insulin options for no more than $30 (£23) a vial or $55 (£40) for a box of five pen cartridges, regardless of insurance status from 2024.

New NICE draft recommendations for widened access to technology

In November 2021, the National Institute for Health and Care Excellence (NICE) published draft guidance for healthcare professionals, recommending that all adults with type 1 diabetes are offered either flash or Continuous Glucose Monitors (CGM), a change from when these technologies were just "considered" as options. If the recommendations are accepted in the Spring, children and young people with type 1 should also be offered CGM, or flash if CGM is not suitable. This is a really promising step forward in access to technology, for which JDRF will keep pushing.

For the latest type 1 news go to **jdrf.org.uk/news**

Find out more
You can keep up with our latest news at **jdrf.org.uk/news** or follow us

We asked you...

What are your top tips to help manage type 1 during Easter?

Portion your snacks up before you eat them

Always do your insulin

Do your best, enjoy your chocolate and check your insulin

Do the same thing you do every other day

Forgive yourself if things don't go perfectly

Dark chocolate

Ukraine conflict

We are shocked by the unfolding situation in Ukraine and our thoughts are with those caught up in the conflict. We're working together with our JDRF affiliates around the world, to explore the best way to support anyone with type 1 in Ukraine.

Please visit our Ukraine web page if you'd like to find out how you can help – and share it with anyone who may find it useful. We'll regularly update our page as communications and news from Ukraine become available. Help the type 1 community in Ukraine: **jdrf.org.uk/ukraine**

Lady Jubie Wigan shares her motivation for raising a stunning £3million for JDRF research

Lady Jubie Wigan's daughter, Aliena, was diagnosed with type 1 diabetes at the age of two-and-a-half. Ten years on from Aliena's diagnosis, Jubie shares how her family live with type 1, launching Sugarplum Children and trialling type 1 diabetes technology

Aliena's Diagnosis

In January 2012, Aliena, was diagnosed with type 1 diabetes. Aliena had been displaying symptoms of an insatiable appetite, unquenchable thirst and frequent bed wetting. The GP sent Aliena to A&E where she was admitted to the Critical Paediatric Unit and diagnosed with type 1 diabetes. The diagnosis turned Jubie's life upside-down as the family learned how to deal with the unrelenting routine of blood glucose checks and insulin injections.

Living with type 1

When Aliena Wigan was six years old she had a hypo. She was in the back of the car as her mother, Jubie, drove down the motorway to take her to see her grandparents when her blood sugar level became dangerously low.

"Suddenly she was shouting, 'Mummy, I'm really, really low,' and then shaking her head from side to side and kicking and screaming and head-butting the seat, which I'd never seen. It's kind of the body shutting down and really scary," Jubie says.

Jubie managed to locate Aliena's glucose tablets before she became unconscious and within a few minutes she

Lady Jubie Wigan and her daughter Aliena

> With the arrival of the artificial pancreas the constant parental worry as she gets more independent will be a thing of the past

recovered. Jubie drove onto her parents' house. "I just walked in and completely broke down. That was properly scary".

"You can never ever switch off. And for a child that's a huge challenge."

Launching Sugarplum Children

Shortly after Aliena's diagnosis, Jubie, who is the daughter of the Earl of Balfour, launched Sugarplum Children. Her motto has always been 'Where there's a will, there's a way'. Sugarplum Children has two aims: to raise money for type 1 diabetes research, delivered by JDRF, and raise awareness about type 1 diabetes.

Galvanising her friends and supporters, Jubie has now hosted four Sugarplum fundraising dinners (every other year from 2013-2019) with celebrities and high-profile guests, including JDRF Ambassador, The Rt Hon Theresa May MP, Jeremy Irvine and James Norton (who all live with the condition) as well as Pippa Middleton, Julian Fellowes, Florence Welch, and Mark Ronson. Sugarplum Children has also sold an exclusive Sugarplum pendant designed by Annoushka Ducas MBE, and organised the Sugarplum Dog Walk – an idea that came from Aliena herself. In November 2021 Jubie and a team of 11 women, six of whom are either living with type 1 or have a child or family member living with it, raised over £70,000 on a 100km trek through Wadi Rum in Jordan.

To date, Sugarplum Children has raised over £3 million. In recognition of her charitable work, Jubie was awarded the Point of Light in 2016 by the then Prime Minister Theresa May, which recognises outstanding individual volunteers who are making a change in their community and inspiring others.

Trialling Type 1 diabetes technology

10 years on from her diagnosis Aliena now uses an insulin pump and a continuous glucose monitor and is due to start on the artificial pancreas in the spring, which she will access through the NHS. Jubie has always raised money for type one research and treatments, particularly research into the artificial pancreas.

The artificial pancreas uses an algorithm to automatically deliver insulin from a pump based on readings from a continuous glucose monitor. In programming and delivering insulin as needed minute to minute, the technology can significantly lift the burden of managing type 1 diabetes.

For Jubie, this is the power and impact of her fundraising work: Aliena and hundreds of thousands of other people living with type 1 stand to benefit from the artificial pancreas, research which has been supported and realised through Sugarplum and JDRF fundraising.

This year, as we mark the 100th anniversary from when the first human life was saved as a result of the discovery of insulin; Jubie will be marking ten years since Aliena's diagnosis and celebrating how research became reality with her daughter set to be treated with the artificial pancreas on the NHS.

Jubie explains: "With the arrival of the artificial pancreas the constant parental worry as she gets more independent will be a thing of the past".

Fact

According to Professor Partha Kar, 60% of people with type 1 diabetes use non invasive glucose monitoring, like flash or CGM

Get support on living with type 1 at **jdrf.org.uk/information-support**

Images: The Times / News Licensing @katiewilson.photo

Bittersweet: The highs, the lows, hypers and hypos of living with type 1


Duke Al Durham

Duke Al Durham is a spoken word poet, rapper and writer. Diagnosed with type 1 diabetes in 2018 he's turned to poetry to help him understand his feelings about the condition and help others navigate their own journeys

I've been a writer since I was 11 years old. I am a spoken word poet and rapper. Writing rhymes is my therapy. From a young age, I'd scribble raps and poems in my old lyric book. It was my way of expressing myself; an escapism to challenge my OCD. After being diagnosed with type 1 diabetes, the pen was there to help me understand and articulate how I felt. Now I aim to make an impactful change using one rhyme at a time.

Bittersweet

Bittersweet is my collection of poems about 'The highs lows, hypers and hypos of living with type 1 diabetes.' I have two sayings: 'I create to relate and educate' and 'I write how I feel because I only truly feel when I write'. I write to help myself but also raise awareness and understanding and to forge connections.

I published Bittersweet on the 100th anniversary of the day that the first human life was saved as a result of the discovery of insulin – the first of many millions of lives. I want to share the importance of that medical research breakthrough and to raise awareness of what it is like to live with type 1.

I always think that human beings are extraordinary. I think about the Nobel winning scientists, Banting, Best, Collip and Macleod who discovered insulin and how incredible their achievements were saving millions of lives.

But I also think about what a cure would mean. To me it would be overwhelming, it would change my life. When I was diagnosed, I felt like I was a weaker version of myself. I still feel I can't quite reach my potential because of type 1. If I could be cured I would feel that I would be a stronger version of myself. I went through stages of acceptance, frustration, anger, self-destruction then full circle back to acceptance. People living with type 1 diabetes can do anything, our challenge is finding balance within every aspect of our lives.

> **People living with type 1 diabetes can do anything, our challenge is finding balance within every aspect of our lives"**

However, I would not change my diagnosis, I believe that everything happens for a reason, I know that 'Bittersweet' will help so many going through the struggles of living with type 1 diabetes.

To read more about Duke's story please visit: **jdrf.org.uk/duke**

Product watch

The latest type 1 diabetes management medical technology which enables more integrated personal diabetes management

Dana Insulin Pumps

Dana insulin pumps are compatible with CamAPS FX, the world's first licenced interoperable hybrid closed-loop app, available in the UK. Based on sensor glucose readings, the system will automatically adjust insulin delivery. **camdiab.com** and **advancedtherapeutics.org.uk**

Diabetes M

Diabetes M is a digital logbook app. It records insulin, glucose, food, physical activity, other medication as well as blood pressure, pulse and other metrics such as cholesterol. **diabetes-m.com**

MySugr app

The mySugr app is a digital diabetes logbook, which can be used to record insulin, glucose, food, physical activity and other medication. It also includes personalised 'tags' such as needle change. **accu-chek.co.uk/mysugr-app**

My type 1 shopping list

'I love the taste, smell and boost coffee gives me in the morning, but generally limit myself to one, and never after midday'

Melissa Blaik, 42 from London was diagnosed with type 1 at the age of 14. She now works as a nutritional therapist with a special interest in type 1.

'Nutrition and lifestyle are key to managing type 1. Blood glucose levels can affect how you feel every minute of every day. I don't like the word 'diet' but think of food as nourishment, giving my body the fuel it needs. The right combinations of foods – rich in fibre, complex carbs and lots of fresh fruit and veg keep blood sugars within range. Activity is also key, especially to offset the hours I sit in front of the computer and to maintain insulin sensitivity!

Smoothies: Make a great breakfast. I use fruit such as blueberries or raspberries (high in antioxidants), 200ml of almond, coconut or oat milk (unsweetened), half an avocado (slows down the absorption of the sugar), tsp cinnamon, handful of almonds (skin on), tbsp flaxseed, handful of spinach. Bulk up with low GL oats if you're looking for something more substantial. It's a brilliant way to start the day.

Coffee: I try to have it at least an hour after breakfast as it depletes the absorption of nutrients. I find it can really push my blood sugars up if I have it too early before breakfast.

Dextrose: I take these everywhere but don't use them very often. They act as a security blanket as they're really effective for treating a hypo and raising blood sugar fast!

Lentils: I include these daily as they're a great source of protein and fibre. You can add them to salads, or make them the star of a curry or casserole! They're also incredibly filling and are a great tool if you are trying to loose weight or combat insulin resistance.

melissablaiknutrition.co.uk

If you want to share your shopping list, email us at **info@jdrf.org.uk**

Living with type 1 and diabulimia

"Diabetes sucks and having an eating disorder also sucks, so when you add them together, it doubly sucks"

Lawrence has been living with type 1 diabetes for 25 years. Lawrence's mum noticed the signs as her father was a type 1 diabetic. Early on in his diagnosis Lawrence's mum came into his primary school to educate his classmates about diabetes and what to do if anything goes wrong. Roughly thirteen years ago Lawrence also started a rocky relationship with eating disorders.

Growing up with type 1

"Growing up diabetic was... Actually, I don't really know the end to that sentence. I have no memories of non-diabetic life to compare it to, so it's hard to quantify the impact it had on my upbringing. What I do know is that the C-word was bandied about with regularity in the Smith household. Not that C-word (though, actually, knowing my family and their propensity for filthy limericks, yes probably that C-word too), but control.

My rocky relationship with food and diabetes management

"As the responsibility to manage my diabetes passed from my parents on to me, I found that the only aspect of my life I felt I was in control of was my diabetes; as a result, it was what I could most readily abuse.

My relationship with my body took a tumble around this time. I want to make it clear that, although it's indisputably part of the equation, my eating disorder wasn't fully fuelled by the desire to be 'thin'; the visible physical effects were almost by-products. I was so numbed by a depression that had soaked its way into my bones, I just desperately wanted to feel something. By shedding weight and self-perceived undesirable physical attributes, I convinced myself that I was ridding myself of unnecessary barriers to my 'true self'. Once I discovered that skipping injections and mismanaging my blood sugar levels would lead to weight loss, along with restricting my dietary intake and excessive exercise, an insidious neural pathway was established.

I didn't have the words to ask for help, so I made my body do the talking for me. Maybe if people noticed how ill I was, maybe if they saw the cuts that were appearing on my wrists, maybe if people took note of how dwarfed I was by my clothing, maybe they'd ask if I was okay."

The road to recovery

"Ironically, the long (and continuing road) to recovery began with a visit to my diabetic care team. Their puzzlement over my drastically concerning blood results led to them establishing a meal plan. Me pretending to not know the cause of my hospitalisation-warranting blood results was some of the best acting I've ever done. Eventually, however, the weariness and loneliness caused by my eating disorder led me to admitting that I had a problem. Even though, looking back, it's clear that I was experiencing a mix of anorexia nervosa, depression and 'diabulimia' (the phrase attributed to an eating disorder fuelled by mismanaging insulin intake), it wasn't until a health care professional blatantly stated that I was unwell and diagnosed me with an eating disorder that I fully accepted that something was wrong.

From that initial assessment, I've ping-ponged between multiple mental health teams throughout the years. Perhaps understandably, the teams would triage my various ailments and tackle them in accordance to the greatest threat to life. The low weight, depressive thought patterns and self harm I was displaying would be a regular topic of discussion. Somewhere along the way, my relationship with my diabetes fell by the wayside. Bearing in mind that this all took place a few years back, while studies in diabulimia were in their infancy, perhaps the specialists I encountered in my times can be forgiven for not treating my diabetic management adequately. The condition was as much a mystery to the counsellor as it was to the patient."

Hope for the future

"It would appear that, slowly but surely, more research is being undertaken to better understand 'diabulimia' and the effect it can have. When I was first diagnosed with an eating disorder, my diabetes was viewed more as an additional entry in my health log, rather than potentially the foundation from which the roots of my mental health flourished. Whilst still in its relative infancy, it would appear that more research models are moving away from the simplistic notion that eating disorders only affect women, so more men are being involved with the process. The lack of male representation when I was severely unwell furthered my feelings of isolation and otherness."

If you or someone you care about has type 1 diabetes and are struggling with an eating disorder. You are not alone. Please visit: **jdrf.org.uk/t1de**

Type 1 in 10

Diabetic Duo, **Beth McDaniel** and **Ellen Watson**, have been sharing their experiences on social media to help tackle the stigma around type 1

Q When were you both diagnosed with type 1 and could you tell us your diagnosis story?

Beth – I was diagnosed two years ago at age 20. It was a huge shock to my family as we have no family history of type 1 diabetes but as I was displaying all the symptoms I went to the GP and was diagnosed just an hour later!

Ellen – I was diagnosed the week before my seventh birthday; what a lovely present! My mum who is a nurse noticed all of the four T symptoms and brought me to get checked at the hospital. It was difficult to process being so young.

Q What have been the biggest challenges you have faced since your diagnosis?

B & E – As type 1 diabetes needs to be constantly monitored it can be both mentally and physically exhausting. Sometimes we have days where we ask, 'Why me?' but it's important to see the positives.

Q What's your favourite thing about creating TikTok videos?

B & E – We love our online community who are super supportive and interact with what we post. It's so refreshing to create content that relates to other people with type 1 who feel the exact same way. We can share tips and tricks and be there to support each other.

Q How have people responded on TikTok to you sharing videos of living with type 1?

B & E – We were overwhelmed with the response we got from our videos, others with type 1 were reaching out from across the globe to tell us their stories and share experiences. We have received a very positive response.

Q What tips would you give to young people who are diagnosed with type 1 and heading to university?

B & E – We would recommend that you communicate with your lecturers and course director about your condition and let them know your needs. Also let your new friends know so they know how to help in times of hypos. Remember people want to help and they will be super curious and interested about type 1!

Q What are your top tips for managing type 1 during holidays such as Easter?

B & E - Don't beat yourself up if your sugars are a little more unstable during holidays. Time in range can't always be perfect especially during holidays like Christmas where sweet treats are everywhere!

Q Do you use type 1 technology? If so, how has it helped with diabetes management?

B & E – We both wear the Dexcom G6 continuous glucose monitoring device to help manage our blood sugars. It has been a life changing piece of technology that has improved both our time in range as well as providing constant reassurance that we are in control of our levels.

Q What would you say to someone with type 1, who's worried how it will affect their work?

B & E – From experience when in a working environment we inform HR,

our management and our team exactly what our condition is and how to help in emergencies. This has always led to positive conversations and our work colleagues have always understood if we need additional breaks to treat hypos.

Q You must have to spend a lot of time on social media - how do you manage your mental health and wellbeing?

B & E – Spending hours on social media can really affect your mood. One of our new year's resolutions is to reduce our screen time! We love to scroll through TikTok but you have to make time for other activities too like socialising with friends, university work and spending time outdoors! We are huge advocates of telling someone how you feel instead of bottling it up.

Q What's next for 'Diabetic Duo'?

B & E - We continue to say yes to the fantastic opportunities that come our way while we embark in our final year of university. We love working with incredible companies such as Dexcom, they have changed our lives! Our ultimate dream is to be the female Ant and Dec!

TikTok **@diabeticduo**

Instagram **@the_diabetic_duo**

You can read more stories about people living with type 1 on our blog. Go to **jdrf.org.uk/blog** to find out more

Can you grow new beta cells from a sample of a person's own skin?

Professor Doug Melton

At JDRF, we have an ambitious goal – to cure type 1 diabetes. That means giving people with type 1 the ability to make their own insulin again, and consigning carb counting, insulin dosing, and fingerprick testing to the history books

Researchers are currently looking at how to replace the insulin producing cells of the pancreas (known as beta cells) that are killed off by the immune system when type 1 diabetes develops.

One way to do this is to give people with type 1 a transplant of insulin-producing beta cells. In fact, JDRF researchers in Canada, led by Dr James Shapiro, pioneered a way to do this back in the 1990s.

Unfortunately, right now, only a very small number of people can have a beta cell transplant. Not only are there not enough organ donors, but the recipient must take anti-rejection drugs for life, which bring their own complications.

But what if we could grow new beta cells – maybe even ones that were safe from the immune system?

That's where our research comes in.

Back in 2014, we broke the news that long-time JDRF researcher – and father to two children with type 1 diabetes – Professor Doug Melton had found a way to grow millions of insulin-producing cells from stem cells in the lab.

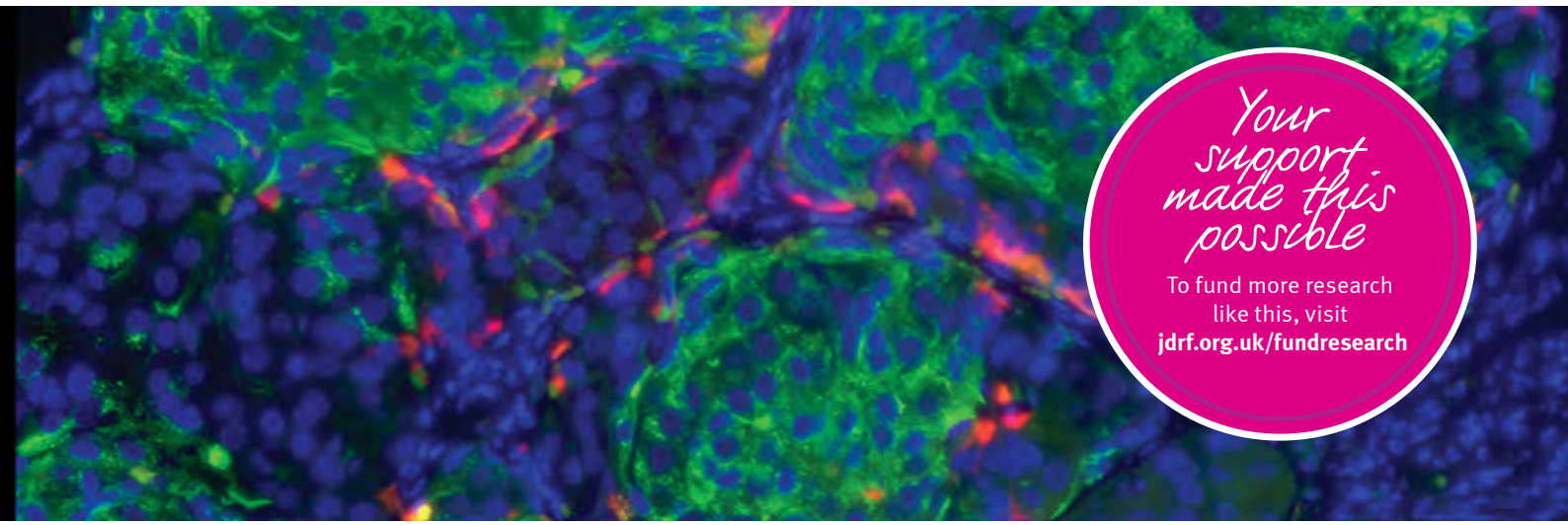
> **Stem cells are a type of cell that can be grown in large numbers and, with the right instructions, can develop into any other type of cell in the body**

Stem cells are a type of cell that can be grown in large numbers and, with the right instructions, can develop into any other type of cell in the body. This makes them an ideal starting point for a sustainable way to cure type 1.

However, until Professor Melton's announcement, the process of turning stem cells into insulin-producing cells

Know your facts

ⓘ Professor Melton's company, Semma, is named for his two children, Sam and Emma, who both live with type 1 diabetes



was slow, hampering attempts to use these cells in new treatments.

With the instructions uncovered, and with further JDRF investment, Professor Melton's company scaled up the research, and is now running clinical trials of the cells in the US. You can read about the trial's early success in our news article on page 4/5.

What about protecting the new cells from the immune system? Here, too, JDRF is leading the way.

In the UK, we have funded Professor Francesca Spagnoli to find a way to grow new beta cells from a sample of a person's own skin.

Although this might sound like science fiction, previous research has shown that it's possible to turn skin cells into heart and muscle cells.

If her research is successful, we could one day take a small sample of skin from a person with type 1 diabetes, and grow them some replacement beta cells in the lab.

This could dramatically reduce the risk of these cells being rejected by the body since, unlike a regular organ transplant, they would be tailored to the recipient.

In the US and Canada, researchers have taken a different approach. There, researchers are developing protective 'pouches' or containers for the cells. The idea is that insulin-producing cells would be stored in these credit card-sized containers, then implanted in the body.

This approach, known as encapsulation, would physically protect the cells from the immune system, while enabling the cells to supply insulin to the body.

US company ViaCyte and Canadian company Sernova have been trialling early versions of their devices in people with severe hypos, with both trials showing signs that the cells can produce insulin and reduce the risk of hypoglycaemia.

And, aided by Dr Shapiro, now a world-renowned expert in beta cell transplantation, ViaCyte is also working with gene-editing technology to see if it's possible to grow insulin-producing cells that can hide from the immune attack that lies at the heart of type 1 – again, reducing the need for medicines that suppress the immune system.

All these potential treatments are at the cutting edge of science today. That's because to cure type 1 diabetes, we need to fund the best and most promising research, wherever it takes place.

With JDRF researchers leading the way, and supporters like you at our side, we're confident that we will create a world without type 1 diabetes.

All these potential treatments are at the cutting edge of science today. That's because to cure type 1 diabetes, we need to fund the best and most promising research, wherever it takes place

Know your facts

The UK was the first country in the world to launch a government-funded islet transplant programme as a treatment for hypoglycaemia unawareness rather than as a research programme

Why my tubeless insulin pump has been a game-changer

Belgian triathlete David Van der Vloet reveals how a tubeless insulin delivery system has helped improve his diabetes management — and made sporting activities easier.

INTERVIEW WITH
David Van der Vloet
Triathlete & Omnipod® Ambassador

David Van der Vloet
David, 35, is a triathlete and veteran of various quarter, half and full Ironman competitions. He is preparing for a seven-day cycle from his home in Belgium to Mont Ventoux in southern France, a distance of 1200km. He lives with his wife Aleksandra and two daughters, Hanna (1) and Laura (5) — and runs a diabetes and sports blog.

When he was 13, David Van der Vloet went to a party at his grandparents' house and proceeded to drink cans and cans of lemonade. "I was so thirsty," he remembers. "At one point my father noticed there were no more soft drinks left because they were all on my side of the table. He thought: 'This isn't normal', so took me to the doctor."

It was a good thing he did because David was later diagnosed with type 1 diabetes. This explained other symptoms he'd been having, such as a constant need for the bathroom, headaches and generally feeling unwell.

"Diagnosis was a difficult time," he says. "All of a sudden I was having to finger prick and inject insulin multiple times a day. I was put on a strict diet, as I only had a pre-mix insulin, so my life had to be incredibly structured. My brothers and my sister, who didn't have Type 1 Diabetes, could eat whatever they wanted, whenever they wanted — whereas I felt limited. That was hard and frustrating."

Ground-breaking Diabetes innovation has made life easier

But times — and innovations — change, and over the years, advances in diabetes treatments have brought greater flexibility and freedom into David's life. When he was in his early twenties, the introduction of fast-acting insulin to his regimen made it easier to time his insulin injections with food, so he could be more spontaneous with mealtimes. Since last October, his insulin has been delivered by the Omnipod DASH® System - a small, tubeless Pod controlled via Bluetooth® from a smartphone-like device called a PDM (personal diabetes manager) meaning he no longer requires multiple daily insulin injections.

This technology has been a godsend, because Belgium-based David is a successful triathlete who competes in Ironman competitions. "Because I do a lot of swimming, running and cycling, I had my doubts about using a pump," he admits. "In a triathlon, every second counts, so I didn't want spend time trying to disconnect the device just before a swim. But my system is tubeless and the Pod is waterproof*, so I can swim while wearing it. Those features convinced me to try it, and I'm really glad I did. I haven't looked back."

David demonstrates how he wears his Pod discreetly under his upper arm. "Unfortunately, I didn't have this device when I took part in my first Ironman competition," he laughs. "I was having to inject myself on my bike while I was racing, which wasn't easy!"

David demonstrates how he wears his Pod discreetly under his upper arm. *"Unfortunately, I didn't have this device when I took part in my first Ironman competition," he laughs. "I was having to inject myself on my bike while I was racing, which wasn't easy!"*

Giving you more control over your insulin delivery

Having more control over insulin delivery benefits David away from sports, too. For example, by personalising his Omnipod DASH® System settings, it helps him to control his insulin delivery at night, which may help prevent nocturnal hypoglycaemia. "It's made my diabetes management a totally different experience," he says. "I can work out how much insulin my body needs at a certain time of day or night and regulate the Pod to deliver it."

David's message to anyone newly diagnosed with diabetes is "don't let your diagnosis hold you back," he says. "People with diabetes can achieve whatever they want, if they have the right support, technology and motivation."

omnipod®
simplify life™

For more information:
omnipod.com/en-gb

Advertisment for **Insulet**

INS-ODS-05-2021-00134 V1

* The Pod has a waterproof IP28 rating for up to 7.6 metres for 60 minutes. The PDM is not waterproof

David Van der Vloet is an Omnipod® Ambassador with an on-going commercial relationship with Insulet.

This Omnipod DASH® System user testimonial relates to an account of an individual's response to treatment with the Omnipod DASH® System. However, the individuals' response does not provide any indication, guide, warranty or guarantee as to the response other persons may have when using the Omnipod DASH® System. The response other persons have could be different. Please speak to your diabetes healthcare professional to assess your suitability for the Omnipod DASH® System.

Refer to the Omnipod DASH® Insulin Management System User Guide for complete safety information including indications, contraindications, warnings, cautions, and instructions.

Experience freedom from Multiple Daily Injections

A simple and discreet way to deliver insulin with the Omnipod DASH® System

Simplify Life™

> No multiple daily injections

> Personalised insulin delivery

> A tubeless insulin pump that comprises of a small, waterproof* Pod controlled by a smartphone-like device (Personal Diabetes Manager)

Hannah McCook
PODDER™ SINCE 2018

ORDER A FREE SAMPLE POD†
Omnipod.com/jdrf2

Actual size of Pod

Speak to your Healthcare Provider to assess if the Omnipod DASH® System is a good option for you.

Insulet_UK **OmnipodUK** **omnipoduk**

*The Pod has a waterproof IP28 rating for up to 7.6 metres for up to 60 minutes. The PDM is not waterproof.
†The sample Pod is a needle-free Pod that does not deliver insulin. PDM is not included.
Screen image is an example, for illustrative purposes only.
 Insulet Netherlands BV Stadsplateau 7, 3521 AZ Utrecht, Pays-Bas. INS-ODS-08-2021-00045 V1-Pt1

omnipod DASH®

The pandemic and type 1 diabetes – revealing the impact

Written by Angel Strachan

Many people with type 1 diabetes find that managing their condition is helped significantly by daily structure and routine, to simplify the already complex and constant daily decision-making that is required of them

However in March 2020, when the government announced the UK would be going into lockdown, the lives of the nearly 400,000 people with type 1 diabetes were upended.

JDRF sought to understand the specific impact of the Covid pandemic upon those already affected by type 1 diabetes. We needed to find out the varied pandemic experiences of people affected by type 1 diabetes right across the UK, including those from more vulnerable groups.

With this in mind, we spoke to over 1,000 people who live with type 1 diabetes or care for people who do. This included a widespread survey of 858 adults and over 250 parents and carers of people with type 1, as well as in-depth phone interviews with 40 people who were hardest hit by Covid, for instance those from lower socioeconomic or ethnic minority backgrounds. We also conducted a separate survey of people with other health conditions in order to provide a comparison of their experience with the experiences of people living with type 1 diabetes.

The results of this research form a new report – Covid and Beyond – launched in October 2021.

Findings

The experiences shared with us depict an enormous withdrawal of NHS services during the pandemic, leading to starkly unequal access to type 1 diabetes care. While reduction in support was not consistent across the UK, nearly two thirds of adults and nearly half of parents could not access their 'normal' level of healthcare support. Yet it was apparent that people with type 1 technology, such as insulin pumps, felt better prepared to self-manage their type 1 diabetes, compared to people without.

In the absence of routine face-to-face visits, many people were able to access virtual healthcare appointments with their clinicians, which became a lifeline for people with type 1 diabetes

In the absence of routine face-to-face visits, many people were able to access virtual healthcare appointments with their clinicians, which became a lifeline for people with type 1 diabetes. Technology also supported virtual appointments through allowing information to be shared on screen. While this provided numerous benefits, as the NHS recover, it is essential that face-to-face appointments resume, in order to reconnect people with their healthcare support and remedy any potentially missed health complications arising from their type 1.

The pandemic had a toll on physical and mental health regardless of access to technology. Almost half of adults with type 1 diabetes feared the pandemic would have a long-term impact on their health, especially given the lack of face-to-face appointments. Missed complications resulting from a reduction of in-person appointments was a key aspect behind this anxiety. Further anxiety was caused by unclear communication from the NHS, with different understanding of the level of risk for people with type 1.

But despite the major disruption to type 1 diabetes healthcare, a majority of adults felt the NHS had done its best to support them during the pandemic. This reflects an admiration of NHS staff and their efforts throughout the pandemic that we at JDRF share. We recognise that the past year and a half were unprecedented and hope that the recommendations within the report will be used to reinforce diabetes care to build a stronger support system for people in the future.

Recommendations

These insights helped us to formulate a set of recommendations on ways to improve the support for people living with type 1.

These include:

- Greater provision of wearable type 1 diabetes technology
- A choice of virtual, telephone and face to face clinics offered to everyone with type 1 diabetes
- Improved, proactive communication from the NHS to people with type 1 and their families
- Prioritisation of the the long-term complications of diabetes when addressing the NHS backlog
- Mental health support to be embedded in all diabetes clinics
- Placing people with type 1 diabetes at the heart of health service design

People affected by type 1 diabetes hold important expertise. It is crucial that we shape the lessons of the pandemic around their experiences, and embed the voice of lived experience within the NHS.

JDRF is committed to working with its partners in the NHS, government and elsewhere on the adoption of these recommendations.

To read our full report, on the pandemic and type 1 visit:
jdrf.org.uk/covid-and-beyond

GlucoMen® Day CGM

Smart™ CGM that doesn't cost the Earth™

NEW

£129/month
for self funders

eco friendly

Investors in Wildlife

GlucoMen Day® CGM provides a new glucose **value every minute** for actual real time alarms, plus **needle-free** application helps it to be the most **eco-friendly system** on the market.

Actual Real-time data
Provides a glucose value every minute for better treatment decisions and hypo/hyper avoidance

Needle-free
Insertion is completely needle-free for a reduced risk of pain or bleeding

Eco-friendly
Reusable applicator, transmitter and needle-free insertion reduces CGM waste by up to 93%

Easy to wear, easy to use
The sensor is water resistant and can be worn for 14 days

Connected
Data can be shared with an HCP or loved one by email or the cloud

Reduced site reactions
Free from isobornyl acrylate; the allergen responsible for the majority of site reactions

The GlucoMen Day® is available via NHS or self-funding. Talk to your healthcare professional to find out if you are eligible for NHS funding. Or call 0800 085 2204 quoting AD12 to find out more about our self-funding options.

GlucoMen®
Simple • Smart • Connected™

www.glucomen.co.uk

Follow us on:

Kiltwalk 2022

Various locations in Scotland
24 April – 9 October 2022

It's time to don your tartan and get ready for the Kiltwalk 2022.

With five dates and locations across Scotland to choose from, which Kiltwalk will you tackle in 2022?

The Kiltwalk is a unique way to raise funds for a Scottish Charity you care about. You raise 100% for your chosen charity and The Hunter Foundation adds 50%.

Sign up at: **jdrf.org.uk/kiltwalk**

Glasgow – 24 April

Aberdeen – 29 May

Dundee – 21 August

Edinburgh – 18 September

Scotland's Virtual Kiltwalk
7 – 9 October

Inspirational, committed and amazing

JOE – was diagnosed with type 1 when he had just turned 12, he's now 25. To mark 100 years of insulin Joe is Swimming 100KM in 100 days. So far Joe has raised an incredible £1,917 - thank you Joe!

TONY COOK – set himself a challenge of running 100km (20 laps of a 5k route), starting at 8am on the 13 January, continuing through the day and into the night. Tony completed his run and raised £867 – incredible effort, thank you Tony!

ABIGAIL – set herself a "Sunday Cycle" challenge to cycle five laps around the local park on four consecutive Sundays in November/ December. Due to the kind generosity of friends and family and staff at her primary school, Abigail raised an amazing £255. Thank you!

We are so grateful for everything you do for us

NICOLA – A massive thank you to Nicola Child who organised a Ladies Day in Ellon for JDRF. The day was a huge success raising a fantastic £3547!

JULIE – During lockdown Julie started selling cakes and organising activities to help raise funds for JDRF. Julie also dresses up in different costumes depending on the holiday, she has kindly donated £678 to JDRF. Thank you!

DANIEL GRIGGS – is aiming to run 83 miles each month as studies show that normal fasting blood glucose levels are considered to be 83mg/dl. Dan set himself a target of raising £996, £1 for each mile he'll be running. He has raised £3,000 to date – thank you Daniel!

Cycle for a cure is back!

Turn your miles into life-changing research by taking on your cycle challenge this May

There are two distances to choose from:

100 miles – to mark 100 years since the first successful injection of insulin.

400 miles – to represent the 400,000 people in the UK living with type 1 diabetes.

Together we can make more breakthroughs and ultimately find the cure.

To register your interest for Cycle for a Cure, please email: **cycleforacure@jdrf.org.uk**

One Walk – save the date!

We are incredibly excited to announce that our flagship in person event is back and bigger than ever!

We can't wait to get the whole type 1 community together and in person for the first time in 2 years.

London (City of London School & Thames Path) – **11 June**

Scotland (Craigtoun Country Park) – **11 June**

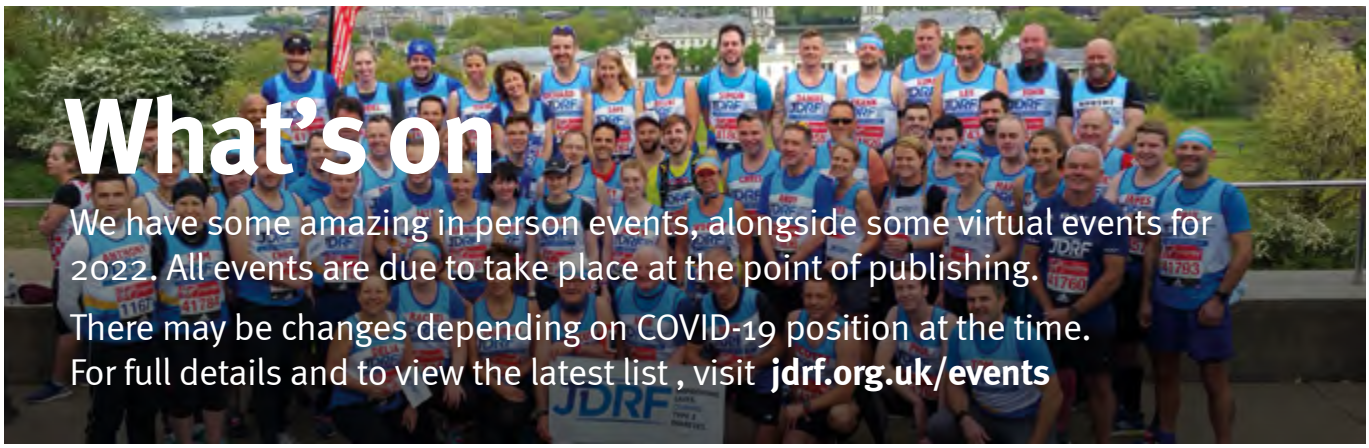
Manchester (Salford Quays / Media City) – **18 June**

Cardiff (Cardiff Met University & Llandaff Fields) – **18 June**

To register your interest for One Walk 2022 email: **onewalk@jdrf.org.uk**

JDRF ONE WALK
FOR A WORLD WITHOUT TYPE 1 DIABETES

Find out more about how to get involved at **jdrf.org.uk/get-involved**



What's on

We have some amazing in person events, alongside some virtual events for 2022. All events are due to take place at the point of publishing.

There may be changes depending on COVID-19 position at the time.
For full details and to view the latest list , visit **jdrf.org.uk/events**

Keep on running

jdrf.org.uk/runningevents

Manchester Marathon **Manchester City Centre**	**3 April**	**Hackney Half Marathon** **Hackney Marshes**	**22 May**
London Landmarks Half Marathon **Pall Mall – London**	**3 April**	**Edinburgh Marathon Festival** **Edinburgh**	**28 – 29 May**
Brighton Marathon **Preston Park – Brighton**	**10 April**	**Bath Half Marathon** **Great Pulteney Street – Bath**	**29 May**
Vitality London 10k **Pall Mall – London**	**2 May**	**Jurassic Coast Challenge (100km)** **Walk, jog or run – Jurassic Coast**	**14 May**
Leeds Half Marathon – Leeds	**8 May**		

On your bikes

jdrf.org.uk/cyclingevents

RideLondon-Essex 100 **London**	**29 May**

Virtual events

jdrf.org.uk/virtualevents

Cycle for a Cure	**May**

One Walk

jdrf.org.uk/onewalk

One Walk 2022	
London and Scotland	**11 June**
Manchester and Cardiff	**18 June**

Regional events

jdrf.org.uk/regionalevents

Scottish Kiltwalk	
Glasgow	**24 April**
Aberdeen	**29 May**

To sign up to any of our events, go to **jdrf.org.uk/events**

Holiday, new car, shopping spree...

What would you spend £25,000 on?

Play now at jdrf.org.uk/lottery

Does Size Matter?

Making diabetes a smaller part of life

More Freedom and Discretion

Nano Tubeless Insulin Pump

Nano CGM

Nano Pump

www.medtrum.co.uk

Smartphone Control

iOS, Android, Apple Watch®

Standalone Insulin Pump

Standalone CGM - more affordable for self-funders

Integrate CGM with Pump for hybrid closed loop feature

To find out more
www.medtrum.co.uk
email: info.uk@medtrum.com
phone: 01923 883 638

Medtrum pump users are initially trained using PDM handset.
Smartphone control is optional.
Ask your diabetes team if the Nano pump is suitable for you.

Simplifying Diabetes

Medtrum