



Welcome

Welcome to the fifty-second issue of Type 2 and You and as Autumn arrives, we would like to invite you all to our Annual Event "Changing Times" and with this newsletter you will find a programme/booking form to reserve your place. We have some reminders about precautions you may want to take ready for winter and advice about what to do if you do fall ill.

We have an update on our Ukrainian Aid Appeal and our usual range of articles and news about diabetes and the latest results from our lottery draw.



Biotin: Good in cosmetics, Bad for Thyroid Tests

Many of us will be familiar with Biotin as being contained in hair, skin and nail cosmetic products. Biotin is actually Vitamin B7 which many of us may also take as a dietary supplement. However, new research reported at this year's American Association of Clinical Endocrinology (AACE) has revealed that some cosmetic products can contain Biotin levels high enough to interfere with several laboratory tests, including those for thyroid function. Biotin interference can result in falsely raised triiodothyronine and thyroxine and falsely low thyroid stimulating hormone, mimicking results seen in hyperthyroidism (Graves' disease). This can lead to unnecessary treatment, with associated side effects.

The researchers suggest that if an asymptomatic patient's thyroid test comes back suggesting hyperthyroidism (overactive thyroid), then they should be asked if they've been using hair, skin or nail products containing biotin. If so, they should be advised to stop taking the supplement for a week and then have their thyroid hormone levels re-measured. The chances are, they will be normal.

The biotin dose found in vitamin supplements is roughly the daily requirement for the human body and doesn't typically interfere with lab results, so can be continued if desired.

Ukraine

'Please see overleaf for the latest update'

Update from Ukraine

Thanks to the generosity of our members and many other people, we have sent two further consignments of insulin and other diabetes supplies to help people with diabetes in Ukraine. Since we started collecting, the need for Type 2 tablets has become apparent, so a particular thanks to people for responding to our pleas and donating unwanted metformin and other Type 2 tablets.

So many thanks to everyone who has helped the people of Ukraine!

We recently received an email from Dmytro, our contact in Ukraine, who sent us pictures of people receiving our donated items. Some of this aid reached the people in Kharkivsky and Dnipro region – the eastern part of Ukraine where the situation has been very difficult.



We are all very well aware that the newspapers and news bulletins have been taken up with UK political issues over the last weeks, but I must remind you that the situation in Ukraine has certainly not gone away, nor have the needs of Ukrainian people with Type 1 or Type 2 diabetes. So IDDT is still collecting unwanted, in-date insulin, blood glucose meters, test strips, needles and lancets and of course, tablets for Type 2 diabetes.

You may remember that Hazel, an IDDT member knitted rabbits which really pleased the children in Ukraine. Now another kind IDDT supporter has knitted teddies which are going out with our next delivery, So, many thanks to Hazel and our other knitters!

Don't forget the IDDT Event on Saturday 29th October 2022!

Members have already received an invitation and a copy of the programme inviting them to our Annual Event on Saturday 29th October 2022. It will be held at our usual venue, the Kettering Park Hotel and Spa. We start the day with our Annual General Meeting and this is the opportunity to nominate new Trustees. If you would like to nominate someone, then please put this in writing to IDDT along with the agreement of the person you are nominating.

The programme is a combination of speakers and discussion groups so includes something for everyone and as ever, it is an opportunity to meet other people who live with diabetes.

For some people, the pandemic has resulted in less support and fewer health checks, so having our speakers and discussion groups will give us information and a few reminders.



We welcome for the first time, Professor Alan Sinclair, a well-known, international expert in diabetes, particularly in older people and we welcome back Abban Qayyum, a senior physiotherapist, who was so enjoyed by those who were able to attend last year's Event. Jane Cheetham from Abbott Laboratories, the manufacturers of the Freestyle Libre will be there to help and the day will end with speaker, Dr Gary Adams.

We do hope as many of you as possible with join us on the day, teas, coffees and a meal at lunchtime are provided, so please do complete the booking form and return to IDDT by 10th October 2022.

If you have any questions or would like another booking form, don't hesitate to give IDDT a call on 01604 622837 or email enquiries@iddtinternational.org .

Winter is Coming – Be Prepared!

Flu and Pneumo Jabs

At this time of year, we like to remind you that the flu jab is offered as a priority to people in 'at risk' groups which includes those with diabetes, pregnant women and the elderly. This year, some people may be eligible for both the flu and the COVID-19 booster vaccines. If you are offered both vaccines it is safe to have them at the same time.

Don't forget about the 'pneumo' jab - a vaccination to protect against pneumonia. This jab is available to the following groups of people:

- children who are under two years of age – they are vaccinated as part of the childhood vaccination programme,
- adults who are 65 years of age or over,
- children and adults with certain chronic health conditions, including diabetes.

Consider taking Vitamin D supplements

The Government advice is that everyone should consider taking a daily vitamin D supplement during the autumn and winter. Vitamin D helps to regulate the amount of calcium and phosphate in the body. These nutrients are needed to keep bones, teeth and muscles healthy. In adulthood, a lack of vitamin D can lead to bone pain caused by a condition called osteomalacia.

For people with diabetes, it plays a crucial role in controlling glucose levels.

Research has shown that vitamin D deficiency can play a role in insulin resistance. Older adults, who can't make vitamin D efficiently from the sun, and those who are overweight may have even more of a reason to supplement it.

The advice is to consider taking a daily supplement containing 10 micrograms of vitamin D during the autumn and winter, typically from October through to March.

How does being sick affect Type 2 diabetes?

Whether you have diabetes or not, our body responds to illness, initially, in the same way. Any infection or injury causes a stress response in the body by increasing the amount of certain hormones, such as cortisol and adrenaline.

These hormones work against the action of insulin and, as a result, the body's production of glucose increases, which results in high blood sugar levels, which can make you feel

even worse. On top of this, high blood sugars mean that your body cannot fight infection as well as normal, meaning that without good diabetes management, your recovery can be slower.

The sick day rules you may or may not adopt will depend on two things, firstly, what your illness is, and secondly, how your diabetes is managed e.g., diet only, diet and medication etc.

If all else fails: Some Sick Day Rules for Type 2 diabetes

In spite of all our best efforts and like it or not (and most of us don't) we, or our loved ones, can get sick at some time or another. Being sick can range from a relatively minor inconvenience to a pretty major life-event. Throw diabetes into this already unpleasant mix and life can get even more complex,

having to manage not just being ill but also the effects of being ill on your day-to-day diabetes management. Over time, people living and working with diabetes have developed some "Sick Day Rules" to help people get through their illness while minimising its impact on their diabetes.

The Sick Day Rules

The rules focus on several areas:

1. Rest.

Avoid strenuous exercise.

2. Treat symptoms.

Symptoms such as a high temperature or a cough can be treated with basic over-the-counter medicines such as painkillers and cough syrups. These do not have to be sugar-free varieties as they contain very little glucose and are taken in small quantities. However, ask your pharmacist for advice.

3. Dehydration.

Prevent dehydration by drinking plenty of sugar-free fluids. Sip gently throughout the day (at least 2 ½ to 3 ½ litres or 4 to 6 pints in 24 hours). Staying hydrated is very important because becoming dehydrated can stop your medication working properly, can cause your blood sugar levels to rise and, in some cases lead to ketoacidosis, which will require hospital treatment.

4. Eating and drinking.

Your body uses a lot of energy when you are unwell, even if you are resting. Try to eat as normal but if you cannot manage your usual meals, replace these with light and easily digested foods such as soups and milky puddings.

5. Hypoglycaemia.

Very occasionally your blood glucose levels may fall when you are ill, and you may experience a hypoglycaemic episode (a 'hypo') (i.e., blood glucose level below 4 mmol/L). Make sure you have suitable "hypo" treatments available such as dextrose tablets, fruit juice or jelly babies.

6. Medication.

If you take medication for your diabetes, then you may need to change the dose of medication you are taking while you are ill. Below is some general guidance about taking medication while you are ill but do not hesitate to contact your doctor or diabetes team if you need further advice or have any concerns.

If you manage your diabetes with tablets:

Continue to take your tablets even if you are not eating. However, if you are taking metformin or an SGLT2 inhibitor (such as empagliflozin, canagliflozin, ertagliflozin, dapagliflozin) and you are vomiting or have diarrhoea, you should stop this medication until you have recovered. If you take Sulphonylureas (such as gliclazide, glimepride, glipizide) and you are unable to eat or drink, you should stop this medication as it can cause hypos. advice or have any concerns.

If you manage your diabetes with non-insulin injections:

If you have non-insulin injections (GLP-1 Receptor Agonists) such as Exenatide, Semaglutide, Dulaglutide or Liraglutide, you should continue to inject as normal, but it is important that you continue to eat and drink normally. However, if you have sickness and/or diarrhoea, you should not take these drugs until you start eating and drinking normally again.

If you manage your diabetes with insulin:

Monitor and record your blood glucose levels at least four times a day (at mealtimes even if you are not eating your usual meals, at bedtime and preferably through the night as well). If your blood glucose readings are higher than usual, you may need to increase your insulin dose, contact your GP or diabetes nurse if you are not sure how to do this. If your blood glucose levels are lower than usual you may need to reduce your insulin or any tablet you are taking which helps your body produce more insulin. Again, contact your GP or diabetes nurse if you are not sure how to do this.

7. Taking Steroids and other non-diabetic medicines

- **Steroids**, are anti-inflammatory medicines used to treat a range of conditions including Addison's disease, severe asthma, rheumatoid arthritis, lupus and now, coronavirus. Some common steroids include prednisolone, betamethasone, dexamethasone and hydrocortisone. If you are taking steroid medication, become unwell and your blood sugars start to rise then you should contact your GP or Diabetes Team for advice, as it may be that you need to change the dose of your current medicine or start a different type of medication.

If you take any of the following medications, then you should stop taking them and seek medical advice. These drugs can cause dehydration and stop your kidneys working properly.

- **ACE Inhibitors**, used for some heart conditions and include drugs such as ramipril, lisinopril, perindopril and captopril.

- **ARBs**, also used for some heart conditions and include drugs such as losartan, valsartan, candesartan and irbesartan.

- **Diuretics**, used for fluid retention and high blood pressure. They include such drugs as furosemide, indapamide and bumetanide. You should seek medical advice before stopping these medicines.

- **NSAIDs**. These are non-steroidal, anti-inflammatory painkillers and include drugs such as ibuprofen and naproxen. Various forms of these drugs are available over the counter, so check the ingredients of any painkillers before you take them.

8. Know When to Seek Help

Call your GP or diabetes specialist nurse for immediate help:

- If you have persistent vomiting and are unable to keep fluids down
- If you become drowsy and breathless
- If you have acute abdominal pain
- If your condition worsens

Don't Forget about help with Prescription Charges

The recent freeze on charges

What does this mean for people with diabetes? In short, not very much if you take medication for your diabetes – you are entitled to free prescriptions. However, if your diabetes is managed by diet alone then the cost of a prescription item will remain at £9.35 until 1st April 2023,

Note: Prescriptions remain free of charge in Northern Ireland, Scotland and Wales.

Medical Exemption Certificates (MedEx)

All people with diabetes (except those where the condition is managed by diet alone) are entitled to free prescriptions. Exemption certificates are issued for 5 years. They must be applied for and are not issued automatically. Ask your doctor for an FP92A form to apply for a medical exemption certificate.

Pre-payment Certificates (PPC)

If you are not eligible for an exemption certificate you may still benefit from purchasing a pre-payment certificate. Anyone can buy a pre-payment certificate for prescription charges and they can save some people a considerable amount of money.

If you pay for more than 12 prescriptions in a year then such a purchase is worth thinking about. At the time of writing, PPCs cost £30.25 for three months and £108.10 for 12 months, which can mean savings for those paying for more than one prescription a month.

? Quick Q&As ?

I have a job interview. Do I need to mention my diabetes?

If your diabetes has no bearing on your ability to do the job, it would not be appropriate or necessary to bring it or any other personal medical information up during your interview. Unless it is a genuine requirement of the job, then it is illegal for a prospective employer to treat a person with diabetes less favourably during the advertising and recruitment process.

Only once a person has passed the interview and they have been offered a job is the employer allowed to ask appropriate health-related questions to ensure the person is able to do the job. It is advised that a health condition, such as diabetes, is disclosed by the candidate at this stage to avoid any potential issues arising during future employment.

How long can I use a bottle of insulin?

Manufacturer recommendations vary, but generally, opened bottles of insulin kept in either the refrigerator or at room temperature should be discarded after one month. Store unrefrigerated insulin below 86°F away from heat and light and follow the manufacturer's storage recommendations to avoid spoilage and waste.

For other injectable anti-diabetic medications, the general rule appears to be to discard any unused medicines 30 days after their first use, even if there is still some medication remaining. Always refer to the manufacturer's instructions.

What should I do if I think my blood sugars are going low and I don't have my meter?

If you think your blood glucose level is low, you still need to address the problem promptly. Stop what you're doing and have a snack, if necessary, even if you have to stop your car or interrupt a conversation to do it. Even without your meter, go ahead and treat your hypo – it's better and safer to run a bit too high.

Can diabetes affect a man's sexual health?

Yes. High blood glucose levels can contribute to the blockage or narrowing of blood vessels, which can restrict blood flow to the penis and cause erectile dysfunction. High blood glucose can also lead to neuropathy, damaging the nerve signals needed for an erection to occur. Getting exercise and controlling blood pressure and blood glucose levels can preserve and even improve sexual function in both men and women.

I feel hypo even when my blood glucose levels are in range. Why might this be?

In some cases, people who have had chronically high blood glucose levels may experience symptoms of hypoglycaemia when their blood glucose level drops to a more normal range. This is because they have become used to having high blood sugar levels.

I'm overweight. How much weight should I aim to lose?

Start with a weight-loss goal of 10% through dietary change, portion control, and daily physical activity. IDDT produce 2 Free booklets "Diabetes – Everyday Eating" and "Weight and Diet". For your copies contact IDDT using the details at the end of this newsletter.

I think I might have developed a foot ulcer. What should I do?

Get immediate attention and treatment for foot ulcers. Treatment may include oral or intravenous antibiotics to control the infection, as well as dressings and salves with lubricating, protective, antibiotic, or cleansing properties.

It's Back! - Lizzie's Tea Party 2022



Lizzie's Tea Party for Diabetes 2022 held in Ballater, Aberdeenshire, on May 7th 2022.

After a gap of two years due to the pandemic, Lizzie and her Mum were delighted to be able to get back to holding Lizzie's Tea Party. Lots of people, young and old, had a great time on the village green, playing games and eating treats. The party raised a total £1,210 to donate as usual to help the children and young people at Dr Pendsey's Dream Trust.

For new readers, Lizzie was diagnosed with Type 1 diabetes when she was a little girl and she and her Mum held an annual Tea Party to raise money to help children at Dream Trust in India, where families have difficulties affording insulin and other supplies.

IDDT and Dr Pendsey want to say a huge thank you to all the helpers and supporters who helped to raise this excellent amount of money.

Diabetes and Tears



A lot of research has been carried out around the subject of tears and diabetes. These have tended to focus on two main areas:

- Diabetes, dry eye disease and neuropathy
- Tears and blood glucose levels

These areas are not mutually exclusive as an examination of the relevant research will show.

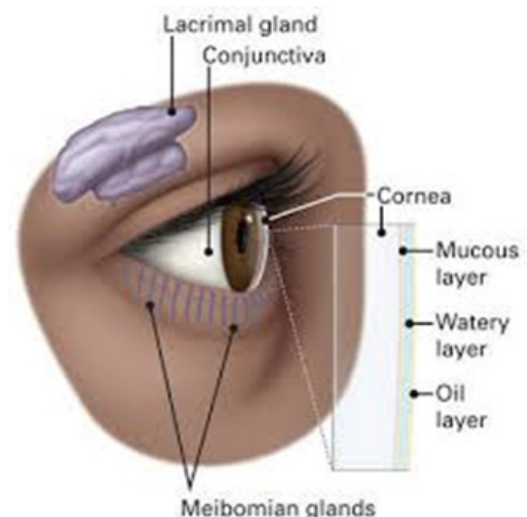
What are tears made up of?

It is tempting to think of tears as a comparatively simple fluid produced to lubricate the eye. The reality, as ever, is more complicated. Tears do indeed lubricate the eye and are made up of three layers. These three layers together are called the tear film.

- The mucous layer is made by the conjunctiva and keeps the tears attached to the eye.
- The watery part of the tears is made by the lacrimal gland. It is the thickest layer, hydrates the eye, keeps bacteria away and protects your cornea. The eye's lacrimal gland sits under the outside edge of the eyebrow (away from the nose) in the orbit.
- The meibomian gland makes the oil that becomes another part of the tear film. The oily layer prevents the other layers

from evaporating and also keeps the tear's surface smooth so that you can see through it.

Tears drain from the eye through the tear duct.



Some other facts about tears:

Not all tears are the same, there are three different types of tears:

- **Basal tears** – always in your eyes to protect from debris and keep them lubricated and nourished.
- **Reflex tears** – form when your eyes are exposed to irritants, such as smoke and onion fumes.

- **Emotional tears** – are produced when you're sad, happy, or feeling other intense emotions.

Cry all you want — you won't run out of tears

- According to the American Academy of Ophthalmology (AAO), you make 15 to 30 gallons of tears every year. While tear production can slow down due to certain factors, such as health and aging, you don't actually run out of tears.

We produce fewer tears as we get older

- You produce fewer basal tears as you get older, which is why dry eyes are more common in older adults. This is especially true for women after menopause due to hormonal changes.

Emotional tears may actually help you

- Some researchers believe that crying is a social signal to get help from others when you're in pain, sad, or feeling any type of distress or extreme emotion. Often, when you cry, it prompts others to offer support, which makes you feel better.
- There is evidence that emotional tears contain additional proteins and hormones that aren't found in the two other types of tears. These may have relaxing or pain-relieving effects that help regulate the body and help it return to its normal state.

Crocodile tears are real if you're a crocodile

- The term "crocodile tears" is used to describe someone who is pretending to cry. It came from the myth that crocodiles cry when eating humans, which was coined from the book "The Voyage and Travel of Sir John Mandeville," published in 1400. According to a 2007 study, crocodiles may actually cry when they eat. Alligators and caimans — which are closely related to crocodiles — were observed, instead of crocodiles. When fed, the animals did shed tears, though the reason for the tears isn't fully understood.

Sleep-crying is real

- Though it happens more often in babies and children, people of all ages can cry in their sleep. Things that can cause sleep-crying or waking up crying include

nightmares, grief, depression, stress/anxiety or chronic pain.

A lack of tears can seriously damage your eyes

Tears keep the surface of your eyes smooth and clear while also protecting against infection. Without enough tears, your eyes are at risk of:

- injuries, such as corneal abrasion
- eye infections
- corneal ulcers
- vision disturbances.

Diabetes, neuropathy and dry eyes

Dry eye syndrome is a common condition that occurs when the eyes do not make enough tears, or the tears evaporate too quickly. Symptoms include a gritty, sandy feeling in the eyes, burning, itching, blurred vision and light sensitivity. Oddly enough, increased watering of the eyes is also a symptom. It usually affects both eyes.

Peripheral neuropathy is the most common complication of diabetes and affects nearly half of all diabetes patients. It occurs when chronically high blood sugar damages the nerves connecting the brain and spinal cord to the rest of the body. Symptoms include pain, numbness, imbalance, weakness, pins and needles, and recurring foot ulcers.

What is the link between the three?

The link between Type 2 diabetes and neuropathy and Type 2 diabetes and dry eye disease is well established and therefore, it is not unreasonable to assume that there may be a direct link between the three. Even if there is not a direct link, then there may be an increased likelihood of the conditions occurring together.

One theory is that dry eye pain, even without clinical signs, could be neuropathic. It believes that this type of eye pain is caused by an injury or disease of the nerves in the eye and, even once these have healed, persisting damage means that abnormal signals are sent to the brain which interprets them as pain. It is one explanation as to why people complain of painful dry eyes without displaying any clinical symptoms. Under these circumstances, neuropathic pain killers, such as gabapentin, should be used in the first instance.

A second theory investigated the relationship between dry eyes and neuropathic pain found that peripheral nerve damage in people with Type 1 diabetes can be traced in tear film. They found that people with such damage have significantly lower levels of a protein called 'substance P' in their tear film.

Although the results could not be generalised to people with Type 2 diabetes and researchers hypothesised that dry eye pain was due to the age-related decrease in the production of 'substance P'. However, researchers want to continue to look at the proteins present in tear film to try and identify a link with Type 2 diabetes and, hopefully, provide the basis for new treatments and management of the conditions.

Tears and Blood Glucose levels

Research into the comparability of the blood glucose levels in the blood and that in tears has tended to show that the two measures are comparable and has given rise to hopes that tests from tears could be developed as a pain free alternative to blood glucose testing.

Researchers from the University of Michigan have been looking into the reliability and accuracy of a glucose sensor that works on tears. The concentration of glucose in tears is about 30 to 50 times lower than in blood which means sensors will need to be more sensitive than blood glucose test strips.

This is not the only challenge facing the development of such systems:

- Another challenge to be addressed is the stimulation of enough tear fluid without producing a stress response that could increase blood glucose levels and give inaccurate readings.
- If tear testing is to become a future blood glucose monitoring method, blood glucose testing may still be needed to calibrate the tear sensor.

Given that the accuracy of blood glucose measuring using tears has been established, work is now underway to develop sensors/monitoring devices that can utilise this link. In the USA a new sensor that tests for glucose based on a tear sample has been developed. It is hoped that the device will help people manage their glucose levels more effectively with just a simple touch to the eye.

The device is currently undergoing human testing.

Another development is that of smart contact lenses. It is hoped that the lenses could help to treat retinopathy by detecting blood glucose levels then delivering controlled medication via electrical signals. The device has proved successful in animal trials and further work needs to be carried out to establish its suitability for human use.

As far back as 2014, Google (Yes – that Google) announced it was working on designing contact lenses that could measure blood sugar levels from tears. The contact lens is the same shape as a conventional contact lens but, between two layers of the lens is a tiny sensor, microchip and an antenna that is thinner than a human hair. The researchers have been working on a prototype that could take a painless glucose reading once every second. At this stage, tests on the technology showed the measurements were inconsistent. However, lead researchers have said "We expect that this research will greatly contribute to the advancement of related industries by being the first in developing wireless-powered smart contact lenses equipped with drug delivery system for diagnosis and treatment of diabetes, and treatment of retinopathy."

To boldly go...into the realms of Science Fiction?

Another research team, again from the USA, have developed prototype contact lenses that change colour according to blood glucose levels. Researchers said "This device could be used to detect subtle changes in blood sugar levels for tight management of diabetes. It can also be used to identify patients with pre-diabetic conditions, allowing early diagnosis that is crucial for preventing diabetes from advancing." This could prove highly beneficial in preventing the development of peripheral neuropathy among people who have undiagnosed Type 2 diabetes.

Several different systems are also in development incorporating the latest technologies such as smart phones and LED displays. We hope that research, testing and development in this area continues and can improve the quality of life of all people with diabetes.

Beam us up Scotty!

Metformin - Take 2



Metformin has a long, proven history of safe use in the treatment of Type 2 diabetes and in fact has been widely used for over 50 years. It is often used as the first line medicine in the treatment of the condition along with diet and exercise. It belongs to a group of medicines called biguanides and lowers blood sugar levels by reducing the amount of glucose produced by the liver and promoting insulin absorption by muscle tissue, thus reducing insulin resistance. Because it does not affect insulin production it has the advantage of not causing low blood sugars (hypos). It is usually given in tablet form but an oral solution is available.

Because of this, its low cost and its lower likelihood of causing complications, it is usually the first choice for prescribing doctors. That being said, metformin is not without possible side-effects, the most commonly reported being stomach upsets, particularly at the start of treatment. There are also a couple of other side effects that people who have been taking metformin at either a higher dose or for a long period of time should know about.

Vitamin B12 Deficiency

In June 2022 a revised warning was issued by the Medicines and Healthcare products Regulatory Agency (MHRA) about metformin and Vitamin B12 (also called Folate) deficiency. It says:

“Decreased Vitamin B12 levels, or Vitamin B12 deficiency, is now considered to be a common side effect in patients on metformin treatment, especially in those receiving a higher dose or longer treatment duration and in those with existing risk factors. We are therefore advising checking Vitamin

B12 serum levels in patients being treated with metformin who have symptoms suggestive of Vitamin B12 deficiency. We also advise that periodic monitoring for patients with risk factors for Vitamin B12 deficiency should be considered.”

Vitamin B12 is a nutrient that helps to keep the body's nerve and blood cells healthy. It is found in foods of animal origin including milk, cheese, yoghurt, and eggs. It is also added to some fortified foods such as breakfast cereals. People who are at risk of Vitamin B12 deficiency include:

- those with Vitamin B12 levels at the lower end of the normal range,
- those with conditions associated with reduced Vitamin B12 absorption, such as the elderly, those with gastrointestinal disorders,
- diets with reduced sources of Vitamin B12, such as strict vegan and some vegetarian diets,
- those taking medication known to impair Vitamin B12 absorption, such as omeprazole or colchicine,
- those with a family history of Vitamin B12 deficiency.

Symptoms of Vitamin B12 deficiency include:

- extreme tiredness (fatigue)
- lack of energy (lethargy)
- breathlessness or feeling faint
- a sore or red tongue, or pins and needles
- headaches.
- pale or yellowing skin.
- noticeable heartbeats (palpitations).

If you suspect you may have Vitamin B12 deficiency then you should continue taking your medication and contact your doctor.

Metformin and low potassium levels (hypokalaemia)

Some studies have linked long-term metformin use with low potassium levels. Potassium is a mineral that helps:

- nerves and muscles "communicate".
- nutrients move into cells and waste products move out of cells.
- the heart function healthily.

Symptoms of low potassium levels can include:

- Constipation.
- Feeling of skipped heart beats or palpitations.
- Fatigue.
- Muscle damage.
- Muscle weakness or spasms.
- Tingling or numbness.

Low potassium levels can readily be identified with a blood test carried out by your doctor. If you are found to have hypokalaemia then your doctor may prescribe dietary supplements to increase your potassium levels and/or give you dietary advice.

A link to Neurodegenerative diseases

Taking metformin is linked to a lower risk of developing neurodegenerative diseases — such as Alzheimer's disease and Parkinson's disease — in people with diabetes, according to a recent analysis published in the journal *Diabetic Medicine*.

Analysis looked at data from 12 studies that had the kind of data they needed for their analysis, which included a total of 194,792 people with diabetes — 94,462 metformin users, and 100,330 non-metformin users.

Overall, the researchers found that metformin users were 23% less likely than non-metformin users to develop neurodegenerative diseases. They also found that the apparent benefit from taking metformin was even greater for long-term metformin users — those taking the drug for at least four years — who were 71% less likely to develop neurodegenerative diseases. They also found that there was also no apparent difference between specific neurodegenerative diseases in terms of the link to metformin.

The researchers concluded that taking metformin, especially for a period of several years, appears to be linked to a lower risk

for neurodegenerative diseases. In addition to this, newer studies have shown that people with early Alzheimer's disease who were given metformin for eight weeks had significant improvements in memory and cognitive function. However, because there were significant differences between the studies included in the analysis, the researchers recommended further studies.

Other possible benefits

Research has showed that taking metformin may have several other benefits for people with Type 2 diabetes. Although the drug has not been repurposed for specifically treating these conditions, evidence is starting to show that it does have benefit.

These conditions include:

- **Cancer** - One study has shown that participants had a 62% lower risk of developing pancreatic cancer when taking metformin. It also reported a slowing in the spread of colon, breast, ovarian, prostate, and lung cancer cells, perhaps due to the medication's antioxidant activity.
- **Stroke** - A study published in the *Journal of Stroke and Cerebrovascular Diseases* followed subjects with Type 2 diabetes for four years and found that only 9.2 percent of those who took metformin had a stroke, compared with 17.5 percent of those who did not take it.
- **Heart Problems** - It has been found that metformin helps protect against coronary events and heart failure. Also, metformin can improve a patients' cholesterol profile.
- **Age-Related Macular Degeneration (AMD)** - Metformin also has potential benefits for your eyesight. In fact, the diabetes medication may reduce the risk for AMD by 58 percent, according to a case-controlled retrospective 2019 study in *Investigative Ophthalmology and Visual Science*.

Metformin has also been shown to have a positive effect on the following health issues for people with or without diabetes:

- **Osteoarthritis** - According to a study published in May 2019, metformin can help people with obesity and osteoarthritis. The researchers found that metformin helped people lose cartilage at a lower rate than those who did not take metformin, and that the medication reduced participants'

- risk of needing a total knee replacement.
- **Arthritis** - A study published in 2019 in Current Rheumatology Reviews found that metformin can protect bones, especially during the early stages of rheumatoid arthritis, and decrease inflammation. Researchers suggest it is because metformin may work in an anti-inflammatory way.

- **And also** – Reports have suggested it might lower the risk of death from COVID-19 in women with Type 2 diabetes, it could help reduce the side effects of steroids and it appears to shield patients with diabetes from harmful complications after surgery.

NHS Low Calorie Diet Programme can reverse Type 2 diabetes but....

A national NHS trial, known as the NHS Low Calorie Diet Programme (LCD), has been shown to result in weight loss and a reduction in the need for medication amongst people with Type 2 diabetes and can help people put their Type 2 diabetes into remission. To date, the programme has been piloted in a number of areas across the country to assess the application of the evidence base in a 'real world' environment. NHS England intends to expand the LCD programme across the whole of England

The programme is primarily for people who are overweight and living with Type 2 diabetes and, for those who are eligible is accessed via referral from general practice. The programme uses a total diet replacement (TDR) approach and includes suggestions such as:

- Replacing pasta sheets in lasagne with sliced aubergine.
- If you are used to having potatoes with your meals, replace them with more vegetables or try things such as celeriac mash or butternut squash.
- Replacing cow's milk (high in carbs due to the sugar lactose) with coconut or almond milk.

The trial findings were as follows:

- Participants lost 7.2kg (15.8 pounds) on average after one month, and 13.4kg (29.5 pounds) after three.
- Those following the Low-Calorie Diet Programme can keep their weight off over time.
- The trials showed that around half of people who had similar weight loss were able to achieve remission of their Type 2 diabetes after one year.

IDDT receives reports of difficulties...

IDDT has received a few phone calls from people describing symptoms they can't understand and when described to their health team, they receive no answers. Some were never overweight and all the callers had similar difficulties:

- feeling tired,
- feeling faint after gardening or going to the supermarket,
- importantly, feeling better if they ate something sweet,
- yes, they lost weight and more weight than they needed to.

For people used to carb counting, looking at the TDR approach, it is clear that this is a very low carb diet and the people calling IDDT with the above symptoms had low blood sugar levels

People undertaking this programme need to receive support and education about the relationship between exercise, energy required and the foods that provide this energy – carbs. This raises the questions of whether a diet can be too low in carbs or whether the old carb-counted diet is better?



From Dusk 'Till Dawn

(And sometimes in-between)

In the 1800's, scientists first proposed the notion of the 24-hour body clock. The idea was that almost all physiological activities and resulting behaviours were controlled by patterns of light and dark, from the sun, called circadian rhythms. Subsequent studies have found that these rhythms affect the insulin producing cells in the pancreas to the degree that disruption to sleep rhythms can not only affect diabetes but may be a contributory factor to the development of the condition itself.

But let's roll it back a bit – how do these circadian rhythms affect day-to-day diabetes and its management? Over the years, people have come to realise, through their own experience and through the experiences of others, that their blood sugar levels follow certain patterns, dictated, not by what they do, but by the time of day. In more recent years, this anecdotal evidence has become supported by scientific evidence and there are now recognised “phenomena” to which people routinely refer and occur in people with either Type 1 or Type 2 diabetes.

The Dusk Phenomenon

The dusk phenomenon is a temporary and spontaneous high blood sugar at dusk (before and after dinner) occurring in people with diabetes that are otherwise well-controlled. The reason for this spike in high blood sugars is not fully understood and may vary between different groups of individuals, as does the degree to which different people experience it. Scientists have variously explained the dusk phenomenon as occurring as a result of changes in other pancreatic hormones, living conditions, blood glucose-related adjustments and biological clock changes e.g., travel to different time zones/jetlag.

Often unrecognised, this abnormal increase in blood glucose could cause someone to adjust for the hyperglycaemia leading to a hypo.

Alternatively, non-intervention can lead to further, unwanted fluctuations in blood sugar.

Studies have looked at various interventions, with a view to minimizing the impact of the phenomenon including:

- Use of metformin in advance
- Use subcutaneous insulin in advance
- Changing an insulin pump regime

Studies using these three possible management methods have initially showed good results but scientists freely admit that they need to carry out more research on the dusk phenomenon and how it can be managed.

Dawn Phenomenon

The Dawn Phenomenon is probably the most widely recognised type of event discussed in this article and possibly the one that appears to defy logic the most. It is very similar to the Dusk Phenomenon in that it causes high blood sugar levels, only majorly differing in the time it happens. No wonder then, that people ask “Why is my blood sugar high when I haven't eaten anything since last night?”

These high blood sugar levels are caused by the release of certain hormones (including cortisol, glucagon, epinephrine) by the body, causing the liver to release glucose. This is why the phenomenon is sometimes, rather unceremoniously, referred to as “The Liver Dump.”

Abnormally high blood glucose levels usually occur between 8 and 10 hours after going to sleep for people with diabetes. Researchers think that the release of these hormones may give rise to a brief period of insulin resistance which would also explain a rise in blood glucose levels.

Typically, dawn phenomenon is treated in similar ways to the Dusk Phenomenon:

- By avoiding intake of carbohydrates at bedtime

- Adjusting how much insulin or medication is administered
- Switching to other medications or using an insulin pump.

High morning blood sugar levels are relatively common and can be down to a variety of things not just the Dawn Phenomenon, including insufficient insulin, incorrect medication dosage, carbohydrate snacks before bed and more. Testing blood glucose during the course of the night (say between 2 and 4 am) may help to establish when blood glucose levels are rising and therefore whether you are experiencing dawn phenomenon. You can then try taking corrective action.

Night-Time Hypos and the Somogyi Effect

As we have said, high morning blood sugars are not always as a result of the Dawn Phenomenon. One particularly unpleasant and unwelcome feature of diabetes is the occurrence of night hypos.

Night hypos tend to occur in people who treat their diabetes with insulin but hypos can occur in anyone using blood glucose-lowering medication. The chances of having night time hypos may be increased by the following:

- Too high a level of basal (background) insulin
- Physical activity during the day can increase insulin sensitivity which can lead to night time hypoglycaemia, particularly for the first night after a sustained session of activity
- Following alcohol consumption
- Absence of a night time snack when one is usually taken
- Missing out dinner
- Following a period of illness if basal insulin was increased

Sometimes you may wake during an episode of nocturnal hypoglycaemia. However, if you don't, you may notice one or more of the following indications that hypoglycaemia may have occurred whilst you were asleep:

- Waking with a headache
- Experiencing seemingly unprovoked sleep disturbance
- Feeling unusually tired
- Waking with damp bed clothes and sheets from sweating.

The treatment for night time hypos is the same as the general advice for treating hypos but why would a night hypo leave you with high blood sugar levels in the morning?

There is a growing body of research to suggest that this is due to something called the Somogyi effect (also known as post-hypoglycemic hyperglycaemia or chronic Somogyi rebound). The phenomenon describes a rebound high blood sugar level in response to low blood sugar levels.

Put forward by Professor Michael Somogyi, he theorised that prolonged levels of untreated hypoglycaemia could lead to stress (due to low blood sugar) and a high blood sugar levels rebound. This is a defensive response by the body as it released endocrine hormone glucagon, backed up by the stress hormones cortisol and epinephrine. This means an instant increase in blood glucose, and stress hormones cause insulin resistance for several hours, and this in turn leads to elevated blood sugar.

Although challenging, Somogyi effect is avoidable in several ways. Firstly, intense blood glucose testing allows the individual experiencing Somogyi effect to detect and then prevent the circumstances leading to it. Night testing blood sugar regularly using a traditional blood glucose meter helps to catch and treat low blood sugar levels before any rebound occurs.

Although often confused, the Somogyi Effect is different from the Dawn Phenomenon because it is brought on by nocturnal hypoglycaemia rather than natural circadian rhythms.

IDDT produce a leaflet "The Importance of Sleep" covering many aspects of diabetes and its relationship with sleep. For your FREE copy, contact IDDT using the details at the end of this newsletter.



BITS AND PIECES

• Mediterranean Diet Beats Low-Fat Diet for Kidney Function in Type 2

The Mediterranean diet has previously been reported as having benefits in preserving kidney function in people with Type 2 diabetes and Coronary Artery Disease (CAD). Now, a study reported in the journal *Clinical Nutrition*, has indicated that the Mediterranean diet may be more beneficial than a low-fat diet when it comes to preserving kidney function. Both at the beginning of the study and after a five-year follow-up period, participants had their kidney function measured — in the form of estimated glomerular filtration rate (eGFR). While all participants following either a low-fat or Mediterranean diet showed a decline in kidney function, those following the Mediterranean diet showed less decline than other participants. Researchers said *“The long-term consumption of a Mediterranean, when compared to a low-fat diet, may preserve kidney function, as shown by a reduced decline in Glomerular Filtration Rate (eGFR)”*.

• Repurposed Type 2 drugs.

“Repurposing drugs” is the process by which established drugs are found to have a therapeutic use over and above that for which they were originally intended, leading them to be licensed for that new purpose. It is becoming increasingly common and a couple of Type 2 drugs have recently been “repurposed”.

In the UK, NICE have issued guidelines recommending the SGLT-2 inhibitor, Empagliflozin for patients with chronic heart disease. Similarly, Dapagliflozin has been recommended for patients with chronic kidney disease. Elsewhere, in the U.S, an injectable form of semaglutide, called Wegovy, has been available for weight loss since 2021. It has now been licensed for private use in the UK and should become available at some point this year.

• The Association Between Vitamin D, Type 2 Diabetes Mellitus Complicated with Non-Alcoholic Fatty Liver Disease (NAFLD).

This study from China suggests that people with Type 2 diabetes and a BMI of greater 23 (the NHS recommends a BMI of between 18.5 and 24.9) were more susceptible to NAFLD caused by vitamin D deficiency and that it is necessary to maintain optimal serum vitamin D levels in this population. (Tests for vitamin D deficiency can be carried out by your doctor).

• Type 2 Remission in Trials of Medicine Versus Metabolic Surgery.

A three-year follow-up of the largest cohort of randomized patients followed up to now has shown that metabolic/bariatric surgery is more effective and durable than medical or lifestyle interventions in the remission of Type 2 diabetes following resulting weight loss. The study included individuals with class 1 obesity (BMI 30-34), for whom surgery is not widely used (*Diabetes Care*).

• Peripheral Nerve Problems Linked to Future Dementia

A recently completed, 11-year study of 2,174 older adults has linked having peripheral nerve function problems in the lower legs, with a higher risk of developing dementia. The results of the study, published in the journal *Neurology*, re-emphasise the need to maintain optimum blood glucose control. The researchers concluded that the link between peripheral nerve function and risk for dementia may reflect “a shared susceptibility to nervous system degeneration”. However, they also point out that while the two are strongly linked, one does not necessarily mean the development of the other and that further research is needed to investigate the link specifically for people with diabetes.

• GLP-1 RAs use associated with risk of gallbladder and biliary diseases

A systematic review of study data has found that use of GLP-1 RAs was associated with increased risk of gallbladder or biliary (bile-related) diseases, especially when used at higher doses, for longer durations, and for weight loss. Although symptoms may differ between conditions, symptoms common to many of the conditions include jaundice, abdominal pain, nausea or vomiting, loss of appetite, fatigue, fever, itching, light brown urine and greasy or clay-coloured stools.

• Study shows that not just frequency but also regularity of HbA1c testing impacts on positivity of outcomes.

These findings indicate that the consistency of HbA1c testing interval, not the just number of tests per year, is important in maintaining diabetes control, especially in those with moderately raised HbA1c levels. The researchers point out that systems to improve regularity of HbA1c testing are therefore needed. The HbA1c test is one of the 9 key check that every person with diabetes is entitled to on a regular basis.



Remember - membership of IDDT and our booklets are free!

We are all very much aware of the increases in the cost of living and having to cut back on what we spend. We would just like to remind you that IDDT's policy has always been that membership is free.

This means that people receive our Newsletter, Type 2 & You and our leaflets and booklets free of charge. This policy has always been in place, so that no one is denied information about diabetes because of lack of funds. This has not changed, so if things are hard for you at the present time, please do not feel that you have to cancel your membership.

Of course, I have to add that we are very grateful to those of you who make donations, all of which help us to continue to help every one with diabetes.

Thinking about Christmas

Included with this Newsletter is a leaflet entitled, 'Thinking about Christmas' and although it seems early, Christmas and the New Year will be here sooner than we can imagine. With the leaflet you can order IDDT Christmas cards, the Diabetes Diary 2023 and IDDT's Shopping List.

This Shopping List has magnets on the back to attach to your fridge for easy jotting down and so it will not get lost! On one half of the page you plan your meals for each day and on the other half you write down the items you need to buy. This is a tear off section to take to the shops with you or to order your online shopping. It works well with the 28-day meal planner in IDDT's FREE booklet, "Diabetes Everyday Eating".

Take a look at the leaflet for gift ideas and support IDDT!

If we can be of help in any way, please contact:

InDependent Diabetes Trust (IDDT), PO Box 294, Northampton NN1 4XS

Tel: 01604 622837 email: enquiries@iddtinternational.org Or visit our website: www.iddtinternational.org



LOTTERY RESULTS

WINNERS OF THE April 2022 DRAW ARE:

- 1st prize of £553.44 goes to Doreen from Ely
- 2nd prize of £415.08 goes to Neil from Thetford
- 3rd prize of £276.72 goes to Marina from London
- 4th prize of £138.36 goes to Rosemary from Newtownabbey

WINNERS OF THE May 2022 DRAW ARE:

- 1st prize of £556.32 goes to Sylvia from Barton Seagrave
- 2nd prize of £417.24 goes to Stephen from Swindon

- 3rd prize of £278.16 goes to Neil from Thetford
- 4th prize of £137.52 goes to Bev from Edgware

WINNERS OF THE June 2022 DRAW ARE:

- 1st prize of £550.08 goes to Anon from Wolverhampton
- 2nd prize of £412.56 goes to Ruth from Gloucester
- 3rd prize of £275.04 goes to Julie from Torfean
- 4th prize of £137.52 goes to Anon from Alford

Note: The winners of the draws for July, August and September 2022 will be announced in our December 2022 Newsletter and on our website.

A huge 'Thank You' to everyone who supports IDDT through the lottery. If you would like to join in for just £2.00 per month, then give us a call on 01604 622837 or email jenny@iddtinternational.org