

Diabetes Bulletin

June 2024

Diabetes Bulletin

BLOOD SUGAR, GESTATIONAL,
DIABETES TYPE 2, INSULIN,
GESTATIONAL, DIABETES TYPE 2,
HYPERGLYCAEMIA, BLOOD SUGAR,
COMORBIDITIES, GLUCOSE, INSULIN,
BLOOD SUGAR, DIABETES TYPE 1,
HYPOGLYCAEMIA, COMPLICATIONS.

This bulletin gathers reports, guidelines and articles indexed in KnowledgeShare, plus practice changing summaries and 'What's New in Diabetes' from UpToDate, as well as any books newly purchased for the Library. These are presented alphabetically by topic.



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General

Articles

[An Analysis of the Distribution of Direct Cost of Diabetes Care in Selected Districts in Italy.](#)

Mennini F.S., Sciattella P, Marcellusi A, et al. *Diabetes Therapy* 2024, 15(6): 1417-1434.

[**Introduction:** This study aims to define the distribution of direct healthcare costs for people with diabetes treated in two healthcare regions in Italy, based on number of comorbidities and treatment regimen.]

Freely available online

[Correction to Lancet Diabetes Endocrinol 2024; 12: 233–46](#)

Lancet Diabetes & Endocrinology, 2024, 12(6), e.17.

[Michael EJ Lean, Wilma S Leslie, Alison C Barnes et al. 5-year follow-up of the randomised Diabetes Remission Clinical Trial (DiRECT) of continued support for weight loss maintenance in the UK: an extension study.]

Available online with your NHS OpenAthens account

[Correction to Lancet Diabetes Endocrinol 2024; 12: 301–02](#)

Lancet Diabetes & Endocrinology, 2024, 12(6), e.17.

[Flint SW. Rethinking the label “Anti-Obesity Medication”.]

Available online with your NHS OpenAthens account

[Effectiveness of complex behaviour change interventions tested in randomised controlled trials for people with multiple long-term conditions \(M-LTCs\): systematic review with meta-analysis.](#)

Rookes T.A., Nimmons D, Frost R, et al. *BMJ Open* 2024;14(6):e081104.

[**Introduction:** The prevalence of multiple long-term conditions (M-LTCs) increases as adults age and impacts quality of life and health outcomes. To help people manage these conditions, complex behaviour change interventions are used, often based on research conducted in those with single LTCs. However, the needs of those with M-LTCs can differ due to complex health decision-making and engagement with multiple health and care teams.

Objectives: The aim of this review is to identify whether current interventions are effective for people living with M-LTCs, and which outcomes are most appropriate to detect this change.]

Freely available online

[Indirect effects of the COVID-19 pandemic on diagnosing, monitoring, and prescribing in people with diabetes and strategies for diabetes service recovery internationally](#)

Rutter M.K., Carr M.J., Wright A.K., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111693.

[The COVID-19 pandemic has caused major disruptions in clinical services for people with chronic long-term conditions. In this narrative review, we assess the indirect impacts of the COVID-19 pandemic on diabetes services globally and the resulting adverse effects on rates of diagnosing, monitoring, and prescribing in people with type 2 diabetes. We summarise potential practical approaches that could address these issues and improve clinical services and outcomes for people living with diabetes during the recovery phase of the pandemic.]

Available online with your NHS OpenAthens account

[Join us in Bangkok for the IDF World Diabetes Congress 2025](#)

Hussain A. *Diabetes Research and Clinical Practice* 2024, 212: 111711.

[In 2025, the International Diabetes Federation will host its World Diabetes Congress in Bangkok, Thailand, from April 7 to 10. It will be my immense pleasure to welcome you there as I complete my

term of office as President and hand over the leadership of the Federation to my successor, Professor Peter Schwartz and a new Board elected by IDF's 245 members across 160 countries.]

Available online with your NHS OpenAthens account

[Joint association of diabetes mellitus and inflammation status with biological ageing acceleration and premature mortality](#)

Tang F, Yang S, Qiu H, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103050.

[**Background:** We aimed to investigate the associations of diabetes mellitus (DM) and C-reactive protein (CRP) with biological ageing acceleration and mortality risk.]

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[Longitudinal HbA1c patterns before the first treatment of diabetes in routine clinical practice: A latent class trajectory analysis](#)

Nicolaisen S.K., Le Cessie S, Thomsen R.W., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111722.

[**Aims:** To examine the longitudinal heterogeneity of HbA1c preceding the initiation of diabetes treatment in clinical practice.]

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[Social Media in the Management of Obesity and Diabetes: An Underutilised Population Educational Tool.](#)

Keen F, Bhukya B, Evans L.M. *Diabetes Therapy* 2024, 15(6): 1255-1260.

[Obesity and diabetes are two of the most common chronic medical conditions encountered, putting an ever-increasing strain on healthcare systems worldwide. Social media meanwhile has taken the world by storm over the last 2 decades, providing a way to distribute information instantly and on a vast scale at the click of a button. The use of social media to aid in the management of obesity and diabetes though is an underutilised tool, with the potential to help in educating and supporting these patients in numerous ways both now and in the future, on a grand scale. The caveat to this, however, is the negative side of social media, which can include the spread of disinformation and bullying. In this commentary, we discuss the methodology and wide scale of positive and negative effects of social media across the management of obesity and diabetes, as well as the possible methods we can use this to our advantage in the medical profession to help our patients going forward.]

Freely available online

Reports

[Individuals with autism are at a higher associated risk of developing cardiometabolic diseases.](#)

Davis J. *Evidence-Based Nursing* 2024;27(3):91.

[**Context:** Autism spectrum disorders represent a group of neurodevelopmental differences commonly diagnosed in childhood, characterised by impaired communication and social interactions and restricted, repetitive behaviours.¹ Autism is associated with multiple medical, neurological and psychiatric comorbidities. These comorbidities often exacerbate disparities in the quality of life and life expectancy of individuals with autism. Obesity has emerged as an important comorbidity associated with autism. Accordingly, several studies have suggested that individuals with autism may be at a higher risk of developing obesity-associated comorbidities such as diabetes mellitus, hypertension, hypercholesterolaemia and atherosclerotic macrovascular disease (eg, coronary artery disease and stroke).²]

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[Managing multimorbidity in midlife may reduce the risk of developing dementia as we age.](#)

Spedale V, Mazzola P. *Evidence-Based Nursing* 2024;27(3):109.

[**Context:** The world population is ageing significantly, with a projected 2 billion people over the age of 65 by 2050.¹ A major consequence of population ageing is the increasing prevalence of dementia, which raises significantly after age 65 and is considered a global public health priority by WHO. A further consequence of ageing is the increase in multimorbidity (coexistence of ≥ 2 chronic conditions), which is particularly prevalent among the elderly with dementia, yet it is less considered than among those without dementia.² Some studies^{3 4} have found that multimorbidity is associated with an increased risk of dementia, but the literature investigating the association between multimorbidity and dementia is limited.]

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Children with diabetes

Articles

[Are the variations in ECG morphology associated to different blood glucose levels? implications for non-invasive glucose monitoring for T1D paediatric patients](#)

Andellini M, Castaldo R, Cisuelo O, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111708.

[**Aims:** Recent clinical trials and real-world studies highlighted those variations in ECG waveforms and HRV recurrently occurred during hypoglycemic and hyperglycemic events in patients with diabetes. However, while several studies have been carried out for adult age, there is lack of evidence for paediatric patients. The main aim of the study is to identify the correlations of variations in ECG Morphology waveforms with blood glucose levels in a paediatric population. **Methods:** T1D paediatric patients who use CGM were enrolled. They wear an additional non-invasive wearable device for recording physiological data and respiratory rate. Glucose metrics, ECG parameters and HRV features were collected, and Wilcoxon rank-sum test and Spearman's correlation analysis were used to explore if different levels of blood glucose were associated to ECG morphological changes. **Results:** Results showed that hypoglycaemic events in paediatric patients with T1D are strongly associated with variations in ECG morphology and HRV. **Conclusions:** Results showed the opportunity of using the ECG as a non-invasive adding instrument to monitor the hypoglycaemic events through the integration of the ECG continuous information with CGM data. This innovative approach represents a promising step forward in diabetes management, offering a more comprehensive and effective means of detecting and responding to critical changes in glucose levels.]

Available online with your NHS OpenAthens account

[Effect of population-wide screening for presymptomatic early-stage type 1 diabetes on paediatric clinical care](#)

Bonifacio E, Winkler C, Achenbach P, et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.376-378.

[Population-wide screening of children for presymptomatic early-stage type 1 diabetes is gaining momentum. Studies have demonstrated feasibility and acceptance, and shown that the rate of progression to clinical stage 3 diabetes is similar if islet autoantibody-positive early-stage type 1 diabetes is identified from general population or first-degree relative screening. ^{1 2} Moreover, in conjunction with an education and follow-up package, screening significantly reduces the rates of ketoacidosis, symptoms, and hospitalisation. ³ Within Europe, Italy has enacted legislation to support such screening ⁴ and the European Commission has funded the EDENT1FI programme to examine the feasibility of screening and follow-up in several countries.]

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Co-morbidities (find here cardiovascular, kidney disease, neuropathy, diabetic retinopathy etc)

Cardiovascular Disease

Articles

[Are the cardiovascular properties of GLP-1 receptor agonists differentially modulated by sulfonylureas? Insights from post-hoc analysis of EXSCEL](#)

Gooding K.M., Stevens S, Lokhnygina Y, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111685.

[**Aims:** To examine whether the cardiovascular effects of glucagon-like peptide-1 (GLP-1) receptor agonists are attenuated by concurrent sulfonylurea (SU) therapy in a post-hoc analysis of the Exenatide Study of Cardiovascular Event Lowering (EXSCEL).]

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[Association of 25-hydroxyvitamin D, lipoprotein-associated phospholipase A2 and asymptomatic coronary artery disease in patients with type 2 diabetes mellitus](#)

Zhang Q, Zhang Q.Q., He J.J., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111681.

[**Aim:** To evaluate the relationship of 25-hydroxyvitamin D (25(OH)D), lipoprotein-associated phospholipase A2 (Lp-PLA2), and coronary artery disease (CAD) in type 2 diabetes mellitus (T2DM) patients with no history or symptoms of cardiovascular disease.]

Available online with your NHS OpenAthens account

[Body Mass Index's influence on arterial hypertension in Type 1 diabetes – A brief report from IMI-SOPHIA study](#)

Petty L.D., Soto-Pedre E, McCrimmon R.J., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108747.

[Information on BMI and risk of developing hypertension in type 1 diabetes (T1D) is scarce, and it comes mostly from cross-sectional analyses. This study underscores a risk of developing hypertension in T1D individuals with high BMI, and this risk appears to be higher than in those with type 2 diabetes.]

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[Diabetes and risk of acute coronary syndrome in callers with chest discomfort: Cross-sectional study in out-of-hours primary care](#)

Spek M, Erkelens D.C.A., Van het Goor – van Wezep C, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111684.

[**Aims:** We investigated the differences in prevalence of acute coronary syndrome (ACS) by presence versus absence of diabetes in males and females with chest discomfort who called out-of-hours primary care (OHS-PC).]

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[Impact of oxidative stress on myocardial performance in patients with diabetes: a focus on subclinical left ventricular dysfunction](#)

Oksen D, Aslan M. *BMJ Open Diabetes Research and Care* 2024;12:e004153

[**Introduction:** Oxidative stress is known to affect left ventricular functions negatively. There is a strong bidirectional connection between diabetes mellitus (DM) and oxidative stress. In parallel, left ventricular dysfunction is observed more frequently, even in patients with DM without other risk factors. In this context, the objective of this study is to comparatively investigate the potential relationship between oxidative stress and subclinical left ventricular dysfunction (SCLVD) assessed by Myocardial Performance Index (MPI) in patients with and without DM.]

Freely available online

[Life's Essential 8 and risks of cardiovascular morbidity and mortality among individuals with type 2 diabetes: A cohort study](#)

Wu H, Wei J, Wang S, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103066.

[Background: The association of cardiovascular health levels, as measured by the Life's Essential 8 score, with cardiovascular disease (CVD) incidence and mortality among individuals with type 2 diabetes (T2D) has not been fully elucidated.]

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[Melatonin: is it really a cardiovascular wonder pill for shift workers?](#)

Xue P, Nôga D.A., Benedict C. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.370-371.

[Melatonin, a hormone primarily produced by the brain's pineal gland, is typically secreted during darkness, aligning with the time when most people sleep. Melatonin plays a crucial part in signalling the onset of the biological night. It achieves this through multiple mechanisms, including inhibiting wake-promoting orexin neurons located in the hypothalamus, which serves as a central hub for regulating the sleep-wake cycle. ¹ The fact that melatonin can help to regulate sleep timing might also explain its popularity, particularly in countries where it is available over the counter. For example, the use of melatonin supplements among adults in the USA increased from 0.4% in 1999–2000 to 2.1% in 2017–18, with similar trends observed across sex and age groups. ² According to a systematic review, melatonin supplements taken after night shifts can increase the length of daytime sleep, which might also explain why the use of melatonin supplements has been proposed to aid sleep among shift workers. ³ Despite being considered safe due to the low frequency of severe adverse effects, ⁴ little is known regarding how chronic supplementation with melatonin might affect health.]

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[Semaglutide for the prevention of atrial fibrillation: A systematic review and meta-analysis](#)

Zhang H.D., Ding L, Liu K, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103067.

[Background: Semaglutide, a glucagon-like peptide-1 receptor agonist, is reported to have cardiac benefits, but its effects on preventing atrial fibrillation (AF) remain inconclusive. This study aimed to investigate whether semaglutide can prevent AF occurrence in patients with type 2 diabetes mellitus (T2DM), obesity, or overweight.]

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[Use of melatonin supplements and risk of type 2 diabetes and cardiovascular diseases in the USA: insights from three prospective cohort studies](#)

Li Y, Huang T, Redline S, et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.404-413.

[Background: Use of melatonin supplements has been increasing substantially in both children and adults in the USA; however, their long-term cardiometabolic effects remain unclear. We aimed to assess the associations between regular use of melatonin supplements and the risk of developing type 2 diabetes or cardiovascular disease in adults.]

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Diabetic Neuropathy

Articles

[Contemporary prevalence of diabetic neuropathies in individuals with type 1 and type 2 diabetes in a Danish tertiary outpatient clinic](#)

Mizrak H.I., Kufaishi H, Hecquet S.K., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108761.

[**Background:** Population-based prevalence estimates of distal symmetric polyneuropathy (DPN) and diabetic autonomic neuropathy (DAN) are scarce. Here we present neuropathy estimates and describe their overlap in a large cohort of people with type 1 and type 2 diabetes.]

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[Metformin improves diabetic neuropathy by reducing inflammation through up-regulating the expression of miR-146a and suppressing oxidative stress](#)

Liu F, You F, Yang L, et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108737.

[**Purpose:** Diabetic neuropathy (DN) is a notable complication of diabetes mellitus. The potential involvement of miR-146a in DN regulation is presently under investigation. Metformin, a commonly prescribed medication for diabetes, is the primary therapeutic intervention. This study aimed to unveil the potential protective effects of metformin on diabetic neuropathy and explore the mechanisms underlying its action.]

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Eye Diseases

Articles

[Prevalence and risk factors for diabetic retinopathy at diagnosis of type 2 diabetes: an observational study of 77 681 patients from the Swedish National Diabetes Registry](#)

Sofizadeh S, Eeg-Olofsson K, Lind M. *BMJ Open Diabetes Research and Care* 2024;12:e003976

[**Introduction:** To assess the prevalence of diabetic retinopathy (DR) in persons with newly diagnosed type 2 diabetes (T2D) to understand the potential need for intensified screening for early detection of T2D.]

Freely available online

[Serum autoantibodies against hexokinase 1 manifest secondary to diabetic macular edema onset](#)

Šimčíková D, Ivančinová J, Veith M, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111721.

[**Aims:** Autoantibodies against hexokinase 1 (HK1) were recently proposed to be associated with diabetic macular edema (DME). We hypothesized that anti-HK1 autoantibodies can be used as DME markers and to predict DME onset.]

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What's New in Diabetes Mellitus from UpToDate

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<https://intranet.mkuh.nhs.uk/> then to the 'Tools' menu and click on 'UpToDate' to start registration.

[No reduction in diabetic retinopathy incidence with omega-3 fatty acid supplementation \(June 2024\)](#)

Omega-3 fatty acids have shown protective effects in preclinical models of diabetic retinopathy.

However, in a primary prevention cardiovascular outcome trial that randomly assigned 15,480 adults with diabetes to treatment with omega-3 fatty acids (1 mg daily) or placebo, no association was found between omega-3 fatty acid treatment and the incidence of referable retinopathy or maculopathy over

6.5 years of follow-up [2]. These findings argue against additive benefit of omega-3 fatty acid supplementation to glycemic and blood pressure management for retinopathy prevention.

Kidney Disease

Articles

[Accessing the relationship between six surrogate insulin resistance indexes and the incidence of rapid kidney function decline and the progression to chronic kidney disease among middle-aged and older adults in China: Results from the China health and retirement longitudinal study](#)

Liu S, Sun H, Liu J, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111705.

[**Aims:** Insulin resistance is closely related to kidney function decline, but which insulin resistance index could better predict rapid kidney function decline (RKFD) remains unclear. We aimed to evaluate the prospective association between six insulin resistance indexes: Chinese Visceral Adiposity Index (CVAI), Lipid Accumulation Product (LAP), Atherogenic Index of Plasma (AIP), triglyceride-glucose (TyG) index, triglyceride-glucose × Body Mass Index (TyGBMI) and triglyceride-glucose × waist circumference (TyGWC) with RKFD and further the progression to chronic kidney disease (CKD).]

Available online with your NHS OpenAthens account

[Assessing the use of sodium-glucose cotransporter 2 inhibitor in patients with type 2 diabetes mellitus and chronic kidney disease in tertiary care: a SwissDiab Study](#)

Hösli P.S., Renström F, Laimer M, et al. *BMJ Open Diabetes Research and Care* 2024;12:e004108

[**Introduction:** The overall aim of this study was to evaluate the implementation of sodium-glucose cotransporter 2 inhibitors (SGLT2i) among patients in tertiary care with type 2 diabetes mellitus (T2DM) and chronic kidney disease (CKD).]

Freely available online

[Effect of proteinuria on the rapid kidney function decline in chronic kidney disease depends on the underlying disease: A post hoc analysis of the BRIGHTEN study](#)

Gohda T, Murakoshi M, Suzuki Y, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111682.

[**Aims:** It is unclear whether the effect of proteinuria on rapid kidney function decline is equivalent among diabetic kidney disease (DKD), non-DKD with diabetes (NDKD+DM), and nephrosclerosis without diabetes (NS-DM), particularly in advanced chronic kidney disease patients.]

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What's New in Diabetes Mellitus from UpToDate

Register with UpToDate to access full text. Go to the MKUH intranet home page at

<https://intranet.mkuh.nhs.uk/> then to the 'Tools' menu and click on 'UpToDate' to start registration.

[Subcutaneous semaglutide and risk of kidney disease progression in type 2 diabetes \(June 2024\)](#)

In a trial evaluating subcutaneous semaglutide (1 mg weekly) versus placebo in over 3500 adults with type 2 diabetes (mean age 67 years, mean A1C 7.8 percent) and chronic kidney disease (CKD; mean estimated glomerular filtration rate [eGFR] 47 mL/min/1.73 m² with median urinary albumin-to-creatinine ratio of 567 mg/g), semaglutide reduced the incidence of major kidney events (a composite of kidney failure onset, ≥50 percent reduction in eGFR from baseline, or kidney- or cardiovascular-related mortality) [3]. Benefits were observed specifically for reduction in eGFR from baseline and cardiovascular mortality. These findings further support the use of semaglutide in people with type 2 diabetes and CKD, particularly when substantial glucose and/or body weight lowering are major goals of care.

Liver Disease

Articles

[Correction to: Effect of Neo-Policaptil Gel Retard on Liver Fat Content and Fibrosis in Adults with Metabolic Syndrome and Type 2 Diabetes: A Non-invasive Approach to MAFLD.](#)

Guarino G, Strollo F, Della Corte T, et al. *Diabetes Therapy* 2024, 15(6): 1485-1490.

[In the section "NAFLD Fibrosis Score" the sentence starting from "NFS can be calculated using the following formula..." has been revised as "NFS can be calculated using the following formula: NAFLD fibrosis score = $-1.675 + 0.037 \times \text{age (year)} + 0.094 \times \text{BMI (kg/m}^2\text{)} + 1.13 \times \text{IFG/diabetes (yes = 1, no = 0)} + 0.99 \times \text{AST/ALT ratio} - 0.013 \times \text{platelet count (}\times 10^9\text{/L)} - 0.66 \times \text{albumin (g/dL)}\dots$ "]

Freely available online

[Influence of glucagon-like peptide-1 receptor agonists on fat accumulation in patients with diabetes mellitus and non-alcoholic fatty liver disease or obesity: A systematic review and meta-analysis of randomized control trials](#)

Xie W, Hong Z, Li B, et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108743.

[**Aim:** This systematic review and meta-analysis aimed to comprehensively evaluate the impact of glucagon-like peptide 1 receptor agonists (GLP-1RAs) on visceral adipose tissue (VAT) and subcutaneous adipose tissue (SAT) in individuals with diabetes mellitus and non-alcoholic fatty liver disease (NAFLD) or obesity.]

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[MASLD/MASH and type 2 diabetes: Two sides of the same coin? From single PPAR to pan-PPAR agonists](#)

Cooreman M.P., Vonghia L, Francque S.M. *Diabetes Research and Clinical Practice* 2024, 212: 111688.

[Type 2 diabetes (T2D) and metabolic dysfunction-associated steatotic liver disease (MASLD), mainly related to nutrition and lack of physical activity, are both very common conditions, share several disease pathways and clinical manifestations, and increasingly co-occur with disease progression. Insulin resistance is an upstream node in the biology of both conditions and triggers liver parenchymal injury, inflammation and fibrosis. Peroxisome proliferator-activated receptor (PPAR) nuclear transcription factors are master regulators of energy homeostasis – insulin signaling in liver, adipose and skeletal muscle tissue – and affect immune and fibrogenesis pathways. Among distinct yet overlapping effects, PPAR α regulates lipid metabolism and energy expenditure, PPAR β/δ has anti-inflammatory effects and increases glucose uptake by skeletal muscle, while PPAR γ improves insulin sensitivity and exerts direct antifibrotic effects on hepatic stellate cells. Together PPARs thus represent pharmacological targets across the entire biology of MASH. Single PPAR agonists are approved for hypertriglyceridemia (PPAR α) and T2D (PPAR γ), but these, as well as dual PPAR agonists, have shown mixed results as anti-MASH treatments in clinical trials. Agonists of all three PPAR isoforms have the potential to improve the full disease spectrum from insulin resistance to fibrosis, and correspondingly to improve cardiometabolic and hepatic health, as has been shown (phase II data) with the pan-PPAR agonist lanifibranor.]

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[Metabolic dysfunction-associated fatty liver disease increases the risk of type 2 diabetes mellitus in young Korean adults](#)

Ha J, Hong O.K., Han K, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111584.

[**Aims:** To investigate the impact of Metabolic Dysfunction-Associated Fatty Liver Disease (MAFLD) on the risk of type 2 diabetes mellitus in young Korean adults.]

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Complications (find here atherosclerosis, claudication, diabetic foot, ulcers etc)

General

Articles

[Recommendations for management of diabetes and its complications during Hajj \(Muslim Pilgrimage\) – 2024 update](#)

Ibrahim M, Ba-Essa E, Alarouj M, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111647.

[Hajj is an obligatory duty for all healthy adult Muslims once in the lifetime subjected to the ability. Considering the 10.5 % global prevalence of diabetes coupled with the numbers of Muslims performing the Hajj, ~ 1.8 million in 2023, it is estimated that Muslims with diabetes performing Hajj may exceed 340,000 this year. During Hajj the pattern and amount of their meal, fluid intake and physical activity are markedly altered. Many people with diabetes insist on doing the Hajj duty, thereby creating a medical challenge for themselves and their health care providers. It is therefore important that medical professionals be aware of the potential risks that may be associated with Hajj. People with diabetes may face many health hazards during Hajj including but not limited to the killer triad which might occur during Hajj: Hypoglycemia, Foot injury and Infections. Many precautions should be taken to prevent and treat these potentially serious complications. Risk stratification, medication adjustments, proper clinical assessment, and education before doing Hajj are crucial.]

Available online with your NHS OpenAthens account

Diabetic Foot

Articles

[Neutrophil Extracellular Traps \(NETs\) Are Associated with Type 2 Diabetes and Diabetic Foot Ulcer Related Amputation: A Prospective Cohort Study.](#)

Ibrahim I, Nuermaimaiti Y, Maimaituxun G, et al. *Diabetes Therapy* 2024, 15(6): 1333-1348.

[**Introduction:** The prevalence of diabetes mellitus and its sequelae has been on the rise, and diabetic foot ulcer (DFU) is the leading cause of non-traumatic lower limb amputation globally. The rising occurrence and financial burden associated with DFU necessitate improved clinical assessment and treatment. Diabetes has been found to enhance the formation of neutrophil extracellular traps (NETs) by neutrophils, and excessive NETs have been implicated in tissue damage and impaired wound healing. However, there is as yet insufficient evidence to clarify the value of NETs in assessing and predicting outcomes of DFU.]

Freely available online

[An overview of diabetes-related foot ulcers.](#)

Gohil K. *British Journal of Community Nursing* 2024;29(Sup6): S30-S36.

[The escalating prevalence of diabetes mellitus presents concern due to its widespread organ damage, including the heart, kidneys, eyes, and nerves, leading to severe complications such as heart attacks, strokes, blindness, and diabetes-related foot ulcers (DFUs). Management in the community setting should be focused on prevention, assessment and patient-centred care. By understanding the complex aetiology, risk factors, and classification of DFUs, along with utilising evidence-based interventions like the Wound, Infection and Ischemia (WIFI) system, we can streamline care. Neuropathy, peripheral arterial disease and infection are major contributors to DFU development, highlighting the importance of early detection and intervention. Comprehensive care addressing vascular health, infection control, pressure offloading, wound management, metabolic control, and patient education is essential for

successful DFU management. Ultimately, proactive prevention strategies and interdisciplinary collaboration are necessary in the management of DFUs and improving patient outcomes.]

Available with an NHS OpenAthens password for eligible users

[A randomized, placebo-controlled study of chitosan gel for the treatment of chronic diabetic foot ulcers \(the CHITOWOUND study\)](#)

Slivnik M, Preložnik M.N., Fir M, et al. *BMJ Open Diabetes Research and Care* 2024;12:e004195

[**Introduction:** To assess the efficacy of a chitosan-based gel (ChitoCare) for the treatment of non-healing diabetic foot ulcers (DFUs).]

Freely available online

Diabetic Ketoacidosis

Articles

[Epidemiology, microbiology, and diagnosis of infection in diabetic ketoacidosis and hyperosmolar hyperglycemic syndrome: A multicenter retrospective observational study](#)

Takahashi K, Uenishi N, Sanui M, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111713.

[**Aims:** We investigated the characteristics of infection and the utility of inflammatory markers in diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic syndrome (HHS).]

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Parkinson's Disease

Articles

[Statin use and the risk of Parkinson's disease in persons with diabetes: A nested case-control study.](#)

Honkamaa K, Paakinaho A, Tolppanen A.M., et al. *British Journal of Clinical Pharmacology* 2024;90(6):1463-1470.

[**Aims:** Persons with diabetes may have an elevated risk of Parkinson's disease (PD). Statin use could also modify the progression of PD. The aim was to study whether there is an association between statin exposure and risk of PD in persons with diabetes.]

Freely available online

Premenstrual Syndrome

Articles

[Emerging Perspectives on the Impact of Diabetes Mellitus and Anti-Diabetic Drugs on Premenstrual Syndrome. A Narrative Review](#)

Azmy Nabeh O, Amr A, Faoosa A.M., et al. *Diabetes Therapy* 2024, 15(6): 1279-1299.

[Diabetes mellitus (DM) and premenstrual syndrome (PMS) are global health challenges. Both disorders are often linked to a range of physical and psychological symptoms that significantly impact the quality of life of many women. Yet, the exact relation between DM and PMS is not clear, and the management of both conditions poses a considerable challenge. In this review, we aimed to investigate the interplay between DM, anti-diabetic drugs, and the different theories and symptoms of PMS. Female sex hormones are implicated in the pathophysiology of PMS and can also impair blood glucose control. In addition, patients with diabetes face a higher susceptibility to anxiety and depression disorders, with a significant number of patients experiencing symptoms such as fatigue and difficulty concentrating, which are reported in patients with PMS as well. Complications related to diabetic medications, such as hypoglycemia (with sulfonylurea) and fluid retention (with thiazolidinediones) may also mediate PMS-like symptoms. DM can, in addition, disturb the normal gut microbiota (GM), with a consequent loss of beneficial GM metabolites that guard against PMS, particularly the short-chain fatty acids and serotonin.]

Among the several available anti-diabetic drugs, those (1) with an anti-inflammatory potential, (2) that can preserve the beneficial GM, and (3) possessing a lower risk for hypoglycemia, might have a favorable outcome in PMS women. Yet, well-designed clinical trials are needed to investigate the anti-diabetic drug(s) of choice for patients with diabetes and PMS.]

Freely available online

Diabetes and pregnancy

Articles

[Causal relationship between gestational diabetes and preeclampsia: A bidirectional mendelian randomization analysis: Comment from Zhang et al](#)

Zhang Y, Peng F. *Diabetes Research and Clinical Practice* 2024, 212: 111707.

[Gestational diabetes mellitus (GDM) is currently the most common complication during pregnancy and may increase the incidence of preeclampsia (PE) through factors such as oxidative stress, inflammation, and endothelial dysfunction [12]. However, observational studies inherently possess limitations, and the evidence remains contentious. With the rise in popularity of genome-wide association studies (GWAS), Mendelian randomization (MR) analysis has emerged as a novel method based on GWAS data that provides potential causal evidence, offering a solution to this challenge. Recently, Yang et al. conducted the MR analysis that first established a causal relationship between genetically predicted PE and an increased risk of GDM, rather than GDM increasing the risk of PE [3]. Despite the strengths of this study, it did not account for sample overlap and violated the three core assumptions of MR, leading to potential biases and false-positive results. Therefore, caution is warranted in interpreting these conclusions.]

Available online with your NHS OpenAthens account

[Comparing advanced hybrid closed loop therapy and standard insulin therapy in pregnant women with type 1 diabetes \(CRISTAL\): a parallel-group, open-label, randomised controlled trial](#)

Benhalima K, Beunen K, Van Wilder N, et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.390-403.

[**Background:** Advanced hybrid closed loop (AHCL) therapy can improve glycaemic control in pregnant women with type 1 diabetes. However, data are needed on the efficacy and safety of AHCL systems as these systems, such as the MiniMed 780G, are not currently approved for use in pregnant women. We aimed to investigate whether the MiniMed 780G can improve glycaemic control with less hypoglycaemia in pregnant women with type 1 diabetes.]

Available online with your NHS OpenAthens account

[Demarcating the benefits of hybrid closed loop therapy in pregnant women with type 1 diabetes](#)

Murphy H.R., Scott E.M. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.368-369.

[The role of hybrid closed-loop systems in the clinical management of type 1 diabetes is rapidly expanding. Randomised controlled trials have shown life-changing clinical and quality-of-life benefits beyond those that can be obtained by use of continuous glucose monitoring (CGM) with an insulin pump or multiple daily injection therapy. ¹ Meta-analyses of trial data confirm substantial glycaemic improvements in people of all ages, with 8–12 percentage points higher time spent in the target glucose range of 3.9–10.0 mmol/L, and lower mean glucose with less or no additional hypoglycaemia. ² Treatment benefits are supported by similar observations in real-world studies, with consistent improvements regardless of closed-loop system characteristics (outside of pregnancy). Thus, to meet user demands, there is an increasing range of commercially available (CamAPS FX [Cambridge, UK], CamDiab [Cambridge, UK], Diabeloop [Grenoble, France], Medtronic 780G, Medtronic [Northridge, CA, USA], Omnid 5, Insulet [Acton, MA, USA], Control-IQ, Tandem [San Diego, CA, USA]) and open-source do-it-yourself closed-loop systems. Treatment benefits are highly dependent on user characteristics,

with the greatest benefits seen in those with higher baseline HbA 1c. 2 3 Data from more than 100 000 multinational non-pregnant users of Medtronic 780G show widespread achievement of optimal glycaemia, with 72% of time spent in target range (3·9–10·0 mmol/L) and 2% of time spent below range (<3·9 mmol/L), with maximal benefits seen in those who use a shorter insulin duration (2 h) and lower glucose target (5·6 mmol/L). 4]

Available online with your NHS OpenAthens account

[First-trimester fasting plasma glucose as a predictor of subsequent gestational diabetes mellitus and adverse fetomaternal outcomes: A systematic review and meta-analysis](#)

Bhattacharya S, Nagendra L, Dutta D, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103051.

[Background: The implication of intermediately elevated fasting plasma glucose (FPG) in the first trimester of pregnancy is uncertain.

Purpose: The primary outcome of the meta-analysis was to analyze if intermediately elevated first-trimester FPG could predict development of GDM at 24–28 weeks. The secondary outcomes were to determine if the commonly used FPG cut-offs 5.1 mmol/L (92 mg/dL), 5.6 mmol/L (100 mg/dL), and 6.1 mmol/L (110 mg/dL) correlated with adverse pregnancy events.]

Available online with your NHS OpenAthens account

[An invited commentary on: “Causal relationship between gestational diabetes and preeclampsia: A bidirectional mendelian randomization analysis”](#)

Yang X, Wang L. *Diabetes Research and Clinical Practice* 2024, 212: 111706.

[In response to recent feedback and concerns raised regarding our study utilizing data from the FinnGen database, we would like to extend our sincerest apologies for any oversights and assure our commitment to rectifying these issues promptly. This commentary aims to transparently address the concerns raised, outline the steps taken to rectify them, and emphasize our dedication to upholding the highest standards of scientific integrity in genetic epidemiology research.]

Available online with your NHS OpenAthens account

[Postpartum diabetes and cardiometabolic outcomes among Indian \(South Asian\) women with early Gestational diabetes mellitus: Insights from the CHIP-F study](#)

Gupta Y, Goyal A, Tandon N. *Diabetes Research and Clinical Practice* 2024, 212: 111710.

[Early GDM is associated with adverse pregnancy outcomes, however data on other outcomes are scarce. We evaluated women with early (n = 117) and classical (n = 412) GDM for long-term postpartum (median 32 months) glycemic and cardiometabolic outcomes and found a significantly higher prevalence of diabetes in the former [22.2 % vs. 12.6 %, p = 0.010].]

Available online with your NHS OpenAthens account

[Postpartum glycemic and cardiometabolic profile of women testing positive for gestational diabetes mellitus by International Association of Diabetes and Pregnancy Study Groups \(IADPSG\) but negative by alternate criteria: Insights from CHIP-F study](#)

Gupta Y, Goyal A, Ambekar S, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103064.

[Objective: To evaluate burden of postpartum diabetes and other cardiometabolic risk factors among women who test positive for gestational diabetes mellitus (GDM) by International Association of Diabetes and Pregnancy Study Groups (IADPSG) criteria, but negative by alternate criteria.]

Available online with your NHS OpenAthens account

Diabetes mellitus Type 1

Articles

[Are the variations in ECG morphology associated to different blood glucose levels? implications for non-invasive glucose monitoring for T1D paediatric patients](#)

Andellini M, Castaldo R, Cisuelo O, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111708.
[Aims: Recent clinical trials and real-world studies highlighted those variations in ECG waveforms and HRV recurrently occurred during hypoglycemic and hyperglycemic events in patients with diabetes. However, while several studies have been carried out for adult age, there is lack of evidence for paediatric patients. The main aim of the study is to identify the correlations of variations in ECG Morphology waveforms with blood glucose levels in a paediatric population. Methods: T1D paediatric patients who use CGM were enrolled. They wear an additional non-invasive wearable device for recording physiological data and respiratory rate. Glucose metrics, ECG parameters and HRV features were collected, and Wilcoxon rank-sum test and Spearman's correlation analysis were used to explore if different levels of blood glucose were associated to ECG morphological changes. Results: Results showed that hypoglycaemic events in paediatric patients with T1D are strongly associated with variations in ECG morphology and HRV. Conclusions: Results showed the opportunity of using the ECG as a non-invasive adding instrument to monitor the hypoglycaemic events through the integration of the ECG continuous information with CGM data. This innovative approach represents a promising step forward in diabetes management, offering a more comprehensive and effective means of detecting and responding to critical changes in glucose levels.]

Available online with your NHS OpenAthens account

[Association between continuous glucose monitoring metrics and clinical outcomes in adults with type 1 diabetes in a real-world setting](#)

McQueen R.B., Perez-Nieves M, Alonso G.T., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111690.

[Aims: Continuous glucose monitoring (CGM) metrics can assist diabetes management. Consensus statements recommend > 70 % time in range (TIR) and ≤ 36 % glucose coefficient of variation (CV). However, how these targets perform in clinical practice is unknown. This retrospective, longitudinal cohort study analyzed relationships between TIR, CV, glycated hemoglobin (HbA1c), and hypoglycemia in a real-world setting.]

Available online with your NHS OpenAthens account

[Associations Between HbA1c and Glucose Time in Range Using Continuous Glucose Monitoring in Type 1 Diabetes: Cross-Sectional Population-Based Study.](#)

Eliasson B, Allansson Kjölhede E, Salö S, et al. *Diabetes Therapy* 2024, 15(6): 1301-1312.

[Introduction: Continuous glucose monitoring (CGM) introduces novel indicators of glycemic control.]

Freely available online

[Body Mass Index's influence on arterial hypertension in Type 1 diabetes – A brief report from IMI-SOPHIA study](#)

Petty L.D., Soto-Pedre E, McCrimmon R.J., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108747.

[Information on BMI and risk of developing hypertension in type 1 diabetes (T1D) is scarce, and it comes mostly from cross-sectional analyses. This study underscores a risk of developing hypertension in T1D individuals with high BMI, and this risk appears to be higher than in those with type 2 diabetes.]

Available online with your NHS OpenAthens account

[Comparing advanced hybrid closed loop therapy and standard insulin therapy in pregnant women with type 1 diabetes \(CRISTAL\): a parallel-group, open-label, randomised controlled trial](#)

Benhalima K, Beunen K, Wilder N.V., et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.390-403.

[**Background:** Advanced hybrid closed loop (AHCL) therapy can improve glycaemic control in pregnant women with type 1 diabetes. However, data are needed on the efficacy and safety of AHCL systems as these systems, such as the MiniMed 780G, are not currently approved for use in pregnant women. We aimed to investigate whether the MiniMed 780G can improve glycaemic control with less hypoglycaemia in pregnant women with type 1 diabetes.]

Available online with your NHS OpenAthens account

[Demarcating the benefits of hybrid closed loop therapy in pregnant women with type 1 diabetes](#)

Murphy H.R., Scott E.M. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.368-369.

[The role of hybrid closed-loop systems in the clinical management of type 1 diabetes is rapidly expanding. Randomised controlled trials have shown life-changing clinical and quality-of-life benefits beyond those that can be obtained by use of continuous glucose monitoring (CGM) with an insulin pump or multiple daily injection therapy. ¹ Meta-analyses of trial data confirm substantial glycaemic improvements in people of all ages, with 8–12 percentage points higher time spent in the target glucose range of 3.9–10.0 mmol/L, and lower mean glucose with less or no additional hypoglycaemia. ² Treatment benefits are supported by similar observations in real-world studies, with consistent improvements regardless of closed-loop system characteristics (outside of pregnancy). Thus, to meet user demands, there is an increasing range of commercially available (CamAPS FX [Cambridge, UK], CamDiab [Cambridge, UK], Diabeloop [Grenoble, France], Medtronic 780G, Medtronic [Northridge, CA, USA], Omnid 5, Insulet [Acton, MA, USA], Control-IQ, Tandem [San Diego, CA, USA]) and open-source do-it-yourself closed-loop systems. Treatment benefits are highly dependent on user characteristics, with the greatest benefits seen in those with higher baseline HbA 1c. ^{2 3} Data from more than 100 000 multinational non-pregnant users of Medtronic 780G show widespread achievement of optimal glycaemia, with 72% of time spent in target range (3.9–10.0 mmol/L) and 2% of time spent below range (<3.9 mmol/L), with maximal benefits seen in those who use a shorter insulin duration (2 h) and lower glucose target (5.6 mmol/L). ⁴]

Available online with your NHS OpenAthens account

[Effect of population-wide screening for presymptomatic early-stage type 1 diabetes on paediatric clinical care](#)

Bonifacio E, Winkler C, Achenbach P, et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.376-378.

[Population-wide screening of children for presymptomatic early-stage type 1 diabetes is gaining momentum. Studies have demonstrated feasibility and acceptance, and shown that the rate of progression to clinical stage 3 diabetes is similar if islet autoantibody-positive early-stage type 1 diabetes is identified from general population or first-degree relative screening. ^{1 2} Moreover, in conjunction with an education and follow-up package, screening significantly reduces the rates of ketoacidosis, symptoms, and hospitalisation. ³ Within Europe, Italy has enacted legislation to support such screening ⁴ and the European Commission has funded the EDENT1FI programme to examine the feasibility of screening and follow-up in several countries.]

Available online with your NHS OpenAthens account

[Effects of Two COVID-19 Lockdowns on HbA1c Levels in Patients with Type 1 Diabetes and Associations with Digital Treatment, Health Literacy, and Diabetes Self-Management: A Multicenter, Observational Cohort Study Over 3 Years.](#)

Tajdar D, Lühmann D, Walther L, et al. *Diabetes Therapy* 2024, 15(6): 1375-1388.

[**Introduction:** Short-term studies reported improved glycemic control and a decrease in eHbA1c (estimated hemoglobin A1c) in patients with type 1 diabetes during COVID-19 lockdown, but long-term

changes are unknown. Therefore, the main objectives are to (1) analyze whether laboratory-measured HbA1c changed during and after two lockdowns and (2) investigate potential variables influencing HbA1c change.]

Freely available online

[Exogenous Insulin Antibody Syndrome \(EIAS\) Presenting in an Elderly, Long-Term Patient with Type 1 Diabetes Mellitus that Resolved with Low-Cost Outpatient Therapy with Mycophenolate Mofetil and Regular Insulin by Pump.](#)

Jerkins T, Stockham K, Bell D.S.H. *Diabetes Therapy* 2024, 15(6): 1473-1481.

[Exogenous insulin antibody syndrome (EIAS) has until recently been a rarely described complication of exogenous insulin therapy. EIAS results not only in hyperglycemia, but also in hypoglycemia and occasionally in ketoacidosis (DKA). The incidence of EIAS is increasing probably due to an overall increase in autoimmunity associated with the coronavirus disease 2019 (Covid-19) epidemic resulting in increasing binding of insulin by antibodies. Herein, we describe a case of EIAS occurring in an elderly patient with longstanding type 1 diabetes mellitus (T1DM) who had progressive loss of glycemic control. It responded positively, as we have previously described, to oral mycophenolate mofetil and the use of soluble regular insulin delivered by continuous subcutaneous insulin infusion (CSII). Therefore, EIAS is an increasingly frequent cause of hyperglycemia with and without DKA, and hypoglycemia in subjects with T1DM. Once diagnosed, they can be treated with mycophenolate mofetil and soluble insulin in an outpatient setting, which will decrease the rate of hospitalization and lower the expense of therapy.]

Freely available online

[Exploring potential correlations between HLA class II and the risk of microvascular complications in Japanese patients with type 1 diabetes](#)

Yamada E, Kajita R, Takahashi H, et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108763.

[Managing complications in Type 1 diabetes (T1D) remains challenging. HLA genes, particularly DR and DQ, are linked to T1D susceptibility. We studied 48 Japanese T1D inpatients and revealed associations between DRB1*04:05-DQB1*04:01 and DRB1*09:01-DQB1*03:03 haplotypes and complications, offering a new perspective for future research.]

Available online with your NHS OpenAthens account

[Glucose metrics improvement in youths with type 1 diabetes using the Ambulatory Glucose Profile report: A real-world study](#)

Maines E, Pertile R, Cauvin V, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111720.

[**Aims:** In this study, we aimed to analyze the possible change in Time In Range (TIR) in subjects with type 1 diabetes (T1D) using the Ambulatory Glucose Profile (AGP) and to identify the main socio-demographic and clinical predictors of sustained use.]

Available online with your NHS OpenAthens account

[Household food insecurity and associations with hemoglobin A 1c and acute diabetes-related complications in youth and young adults with type 1 diabetes: The SEARCH for Diabetes in Youth study](#)

Malik F.S., Liese A.D., Ellyson A, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111608.

[**Aims:** To examine, among youth and young adults (YYA) with type 1 diabetes (T1D), the association of household food insecurity (HFI) with: 1) HbA 1c and 2) episodes of diabetic ketoacidosis (DKA) and severe hypoglycemia.]

Available online with your NHS OpenAthens account

[Improving support for university students with type 1 diabetes](#)

Stoet G, Foster E, Kerr C, et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.378-379.

[Using prevalence data from the UK, ¹ we estimate that there are more than 10 000 university students with type 1 diabetes, out of a total student population of 2.8 million.]

Available online with your NHS OpenAthens account

[Modifiable lifestyle risk factors for overweight and obesity in children and adolescents with type 1 diabetes: A systematic review](#)

Marlow A.L., Lawrence C.M., Smith T.A., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111724.

[This review aims to identify and report epidemiological associations between modifiable lifestyle risk factors for overweight or obesity in children and adolescents with type 1 diabetes (T1D). A systematic literature search of medical databases from 1990 to 2023 was undertaken. Inclusion criteria were observational studies reporting on associations between dietary factors, disordered eating, physical activity, sedentary and sleep behaviours and measures of adiposity in children and adolescents (<18 years) with T1D. Thirty-seven studies met inclusion criteria. Studies were mostly cross-sectional (89 %), and 13 studies included adolescents up to 19 years which were included in this analysis. In adolescents with T1D, higher adiposity was positively associated with disordered eating behaviours (DEB) and a higher than recommended total fat and lower carbohydrate intake. A small amount of evidence suggested a positive association with skipping meals, and negative associations with diet quality and sleep stage. There were no published associations between overweight and physical activity, sedentary behaviours and eating disorders. Overall, the findings infer relationships between DEB, fat and carbohydrate intake and adiposity outcomes in people with T1D. Prospective studies are needed to determine causal relationships and to investigate sleep stages. High quality studies objectively measuring physical activity and include body composition outcomes are needed.]

Available online with your NHS OpenAthens account

[Physical activity trajectories and all-cause mortality in type 1 diabetes: A nationwide longitudinal study](#)

Mavridis A, Viktorisson A, Reinholdsson M, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111702.

[**Aims:** To identify physical activity trajectories, explore the factors associated with them and assess their relationship with all-cause mortality.]

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[Prevalence of skin problems caused by insulin pump therapy and associated factors in children with type 1 diabetes mellitus: A large cross-sectional survey in China](#)

Chen X, Wu X, Yuan T, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111714.

[**Aims:** To document the prevalence of skin problems associated with insulin pump use and identify contributing factors among children with type 1 diabetes mellitus in China.]

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[Psychosocial Self-efficacy and its Association with Selected Potential Factors Among Adults with Type 1 Diabetes: A Cross-Sectional Survey Study.](#)

Stephen D.A., Nordin A, Johansson U.B., et al. *Diabetes Therapy* 2024, 15(6): 1361-1373.

[**Introduction:** The management of type 1 diabetes, a non-preventable chronic disease, leads to a high physical and psychological burden on the individual. Digital health technology can improve a person's psychosocial self-efficacy and thereby contribute to improved diabetes self-care. The aim of this study was to explore associations between psychosocial self-efficacy and demographic-, disease specific-, well-being as well as digital health technology (DHT) related factors among adults with type 1 diabetes.]

Freely available online

[Seasonal differences in physical activity, sedentary behaviour, and sleep patterns in people with type 1 diabetes in Kuwait](#)

Al-Ozairi E, Irshad M, Al-Ozairi A, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103046.

[**Aims:** The main aim of the current study was to measure physical activity, sedentary behaviors and sleep levels across the different seasons in people with type 1 diabetes in Kuwait.]

Available online with your NHS OpenAthens account

[Text messaging to enhance glucose monitoring and self-care in teens with type 1 diabetes: Teens' perceptions predict outcomes](#)

Chen C.W., Serata E, Scheub R, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111719.

[**Aims:** We assessed association between how teens with type 1 diabetes (T1D) perceived a text-messaging (TM) reminder system to check glucose levels and how their perceptions related to their responsiveness to TM reminders to check glucose levels.]

Available online with your NHS OpenAthens account

[Transient albuminuria in the setting of short-term severe hyperglycemia in type 1 diabetes](#)

Huang J.X., Copeland T.P., Pitts C.E., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108762.

[In a cohort of 1817 children with type 1 diabetes (T1D), short-term hyperglycemia was associated with transient albuminuria (11 % during new-onset T1D without diabetic ketoacidosis (DKA), 12 % during/after DKA, 6 % during routine screening). Our findings have implications regarding future risk of diabetic kidney disease and further investigation is needed.]

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Diabetes mellitus Type 2

Articles

[An 8-Week study on the effects of high and Moderate-Intensity interval exercises on mitochondrial MOTS-C changes and their relation to metabolic markers in male diabetic sand rats](#)

Parseh S, Shakerian S, Tabandeh M.R., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111656.

[Mitochondrial dysfunction is a significant feature of type 2 diabetes. MOTS-C, a peptide derived from mitochondria, has positive effects on metabolism and exercise capacity. This study explored the impact of high and moderate-intensity interval exercises on mitochondrial MOTS-C alterations and their correlation with metabolic markers in male diabetic sand rats. Thirty male sand rats were divided into six groups: control, MIIT, DM + HIIT, DM + MIIT, DM, and HIIT (5 rats each). Diabetes was induced using a high-fat diet (HFD) combined with streptozotocin (STZ). The Wistar sand rats in exercise groups underwent 8 weeks of interval training of varying intensities. Post sample collection, protein expressions of PCG-1a, AMPK, and GLUT4 were assessed through Western blot analysis, while MOTS-C protein expression was determined using ELISA. Both exercise intensity and diabetes significantly affected the levels of PCG-1a, MOTS-C, GLUT4 proteins, and insulin resistance ($p < 0.001$). The combined effect of diabetes status and exercise intensity on these levels was also significant ($p < 0.001$). However, the diabetes effect varied when comparing high-intensity to moderate-intensity exercise. The moderate-intensity exercise group with diabetes showed higher levels of PCG-1a, MOTS-C, and GLUT4 proteins and reduced insulin resistance levels ($p < 0.001$). Exercise intensity ($p = 0.022$) and diabetes ($p = 0.008$) significantly influenced AMPK protein levels. The interplay between diabetes status and exercise intensity on AMPK protein levels was noteworthy, with the moderate-intensity diabetes group exhibiting higher AMPK levels than the high-intensity diabetes group ($p < 0.001$). In conclusion, exercise

elevates the levels of PCG-1a, MOTS-C, GLUT4, and AMPK proteins, regulating insulin resistance in diabetic sand rats. Given the AMPK-MOTS-C mitochondrial pathway's mechanisms, interval exercises might enhance the metabolic rates and general health of diabetic rodents.]

Available online with your NHS OpenAthens account

[Association of 25-hydroxyvitamin D, lipoprotein-associated phospholipase A2 and asymptomatic coronary artery disease in patients with type 2 diabetes mellitus](#)

Zhang Q, Zhang Q.Q., He J.J., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111681.

[**Aim:** To evaluate the relationship of 25-hydroxyvitamin D (25(OH)D), lipoprotein-associated phospholipase A2 (Lp-PLA2), and coronary artery disease (CAD) in type 2 diabetes mellitus (T2DM) patients with no history or symptoms of cardiovascular disease.]

Available online with your NHS OpenAthens account

[Association of low carbohydrate diet score with the risk of type 2 diabetes in an Australian population: A longitudinal study](#)

Kabthymmer R.H., Karim M.N., Itsiopoulos C, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103049.

[**Aims:** We aimed to assess the association of a low carbohydrate diet score (LCD) with the incidence of type 2 diabetes (T2D) using Melbourne Collaborative Cohort Study (MCCS) data.]

Available online with your NHS OpenAthens account

[Association of short-term changes in HbA1c with body composition and the importance of muscle maintenance in patients with Type 2 diabetes](#)

Nomura K, Inagaki S, Muramae N, et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108746.

[**Aims:** This study aimed to investigate the relationship between changes in glucose metabolism and body composition in patients with diabetes.]

Available online with your NHS OpenAthens account

[Changes in PM 2.5-related diabetes risk under the implementation of the clean air act in Shanghai](#)

Hu K, Cao B, Lu H, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111716.

[**Objectives:** We examined the associations between PM 2.5 exposure and Type 2 diabetes mellitus risk under the implementation of the Clean Air Act (CAA) among high-risk population for diabetes in Shanghai.]

Available online with your NHS OpenAthens account

[Correction to: Use of IDegLira to Intensify, Simplify, and Increase Appropriateness of Type 2 Diabetes Therapy: A Real-Life Experience.](#)

Romano I, Serra R. *Diabetes Therapy* 2024, 15(6): 1483.

[In this article, the text 'IDegLira can be prescribed in T2D alone or in combination with other oral anti-hyperglycemic agents or in combination with short-acting insulin when glycemic control is poor' should have read 'IDegLira can be prescribed in T2D as an adjunct to diet and exercise in addition to other oral medicinal products for the treatment of diabetes.]

Freely available online

[Effect of fixed-ratio insulin combinations on adherence in type 2 diabetes: Systematic review](#)

Elamin M, Barnish M.S. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103072.

[**Aims:** To systematically review evidence on the effect of fixed-ratio combinations on adherence in people with type 2 diabetes.]

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Effect of Luseogliflozin, a Sodium-Glucose Cotransporter 2 Inhibitor, and Dipeptidyl-Peptidase 4 Inhibitors on the Quality-of-Life and Treatment Satisfaction of Patients With Type 2 Diabetes Mellitus: A Subanalysis of a Multicenter, Open-Label, Randomized-Controlled Trial (J-SELECT Study).

Fukuda M, Sakuma I, Wakasa Y, et al. *Diabetes Therapy* 2024, 15(6): 1403-1416.

[**Introduction:** The effects of dipeptidyl peptidase-4 inhibitors (DPP-4is) and sodium-glucose cotransporter 2 inhibitors (SGLT2is) on quality of life (QOL) and treatment satisfaction have not been directly compared. This sub-analysis of a randomized-controlled trial with an SGLT2i, luseogliflozin, and DPP-4is compared their effects on QOL and treatment satisfaction of patients.]

Freely available online

Effectiveness, Simplification and Persistence of IDegLira in Poorly Controlled People with Type 2 Diabetes: A 4-Year Follow-Up Real-World Study.

Di Loreto C, Celleno R, Pezzuto D, et al. *Diabetes Therapy* 2024, 15(6): 1313-1331.

[**Introduction:** Efficacy and safety of the fixed ratio combination of insulin degludec and liraglutide (IDegLira) has been largely documented. However, long-term data are limited. This study aimed at describing persistence in therapy and the effectiveness at 48 months of IDegLira.]

Freely available online

Extracellular matrix turnover proteins as risk markers in people with type 2 diabetes and microalbuminuria

Skriver-Møller A.C., Møller A.L., Blond M.B., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108765.

[**Background:** This post-hoc study investigated whether biomarkers reflecting extracellular matrix (ECM) turnover predicted cardiovascular disease (CVD), mortality, and progression of diabetic kidney disease (DKD) in individuals with type 2 diabetes (T2D) and microalbuminuria.]

Available online with your NHS OpenAthens account

Hospital-treated infectious diseases, genetic susceptibility and risk of type 2 diabetes: A population-based longitudinal study

Zheng J, Yang Q, Huang J, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103063.

[**Background:** The longitudinal association between infectious diseases and the risk of type 2 diabetes (T2D) remains unclear.]

Available online with your NHS OpenAthens account

Identifying subtypes of type 2 diabetes mellitus with machine learning: development, internal validation, prognostic validation and medication burden in linked electronic health records in 420 448 individuals

Mizani M.A., Dashtban A, Pasea L, et al. *BMJ Open Diabetes Research and Care* 2024;12:e004191

[**Introduction:** None of the studies of type 2 diabetes (T2D) subtyping to date have used linked population-level data for incident and prevalent T2D, incorporating a diverse set of variables, explainable methods for cluster characterization, or adhered to an established framework. We aimed to develop and validate machine learning (ML)-informed subtypes for type 2 diabetes mellitus (T2D) using nationally representative data.]

Freely available online

[Increased glycemic variability results in abnormal differentiation of T cell subpopulation in type 2 diabetes patients](#)

Sun Q, Yang P, Gu Q.W., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108738.

[**Aims:** We aimed to investigate the association between glycemic variability (GV) and the abnormal differentiation of T-cell subpopulations in patients with type 2 diabetes mellitus (T2DM).]

Available online with your NHS OpenAthens account

[Life's Essential 8 and risks of cardiovascular morbidity and mortality among individuals with type 2 diabetes: A cohort stud](#)

Wu H, Wei J, Wang S, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103066.

[**Background:** The association of cardiovascular health levels, as measured by the Life's Essential 8 score, with cardiovascular disease (CVD) incidence and mortality among individuals with type 2 diabetes (T2D) has not been fully elucidated.]

Available online with your NHS OpenAthens account

[MASLD/MASH and type 2 diabetes: Two sides of the same coin? From single PPAR to pan-PPAR agonists](#)

Cooreman M.P., Vonghia L, Francque S.M. *Diabetes Research and Clinical Practice* 2024, 212: 111688.

[Type 2 diabetes (T2D) and metabolic dysfunction-associated steatotic liver disease (MASLD), mainly related to nutrition and lack of physical activity, are both very common conditions, share several disease pathways and clinical manifestations, and increasingly co-occur with disease progression. Insulin resistance is an upstream node in the biology of both conditions and triggers liver parenchymal injury, inflammation and fibrosis. Peroxisome proliferator-activated receptor (PPAR) nuclear transcription factors are master regulators of energy homeostasis – insulin signaling in liver, adipose and skeletal muscle tissue – and affect immune and fibrogenesis pathways. Among distinct yet overlapping effects, PPAR α regulates lipid metabolism and energy expenditure, PPAR β/δ has anti-inflammatory effects and increases glucose uptake by skeletal muscle, while PPAR γ improves insulin sensitivity and exerts direct antifibrotic effects on hepatic stellate cells. Together PPARs thus represent pharmacological targets across the entire biology of MASH. Single PPAR agonists are approved for hypertriglyceridemia (PPAR α) and T2D (PPAR γ), but these, as well as dual PPAR agonists, have shown mixed results as anti-MASH treatments in clinical trials. Agonists of all three PPAR isoforms have the potential to improve the full disease spectrum from insulin resistance to fibrosis, and correspondingly to improve cardiometabolic and hepatic health, as has been shown (phase II data) with the pan-PPAR agonist lanifibranor.]

Available online with your NHS OpenAthens account

[Neutrophil Extracellular Traps \(NETs\) Are Associated with Type 2 Diabetes and Diabetic Foot Ulcer Related Amputation: A Prospective Cohort Study.](#)

Ibrahim I, Nuermaimaiti Y, Maimaituxun G, et al. *Diabetes Therapy* 2024, 15(6): 1333-1348.

[**Introduction:** The prevalence of diabetes mellitus and its sequelae has been on the rise, and diabetic foot ulcer (DFU) is the leading cause of non-traumatic lower limb amputation globally. The rising occurrence and financial burden associated with DFU necessitate improved clinical assessment and treatment. Diabetes has been found to enhance the formation of neutrophil extracellular traps (NETs) by neutrophils, and excessive NETs have been implicated in tissue damage and impaired wound healing. However, there is as yet insufficient evidence to clarify the value of NETs in assessing and predicting outcomes of DFU.]

Freely available online

[One-hour post-load plasma glucose level predicts future type 2 diabetes in a community-based study of Hong Kong Chinese workforce](#)

Ho J.P.Y., Lau E.S.H., O C.K., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111718.

[**Background:** We compared performance of high 1-hour PG level, impaired fasting glucose (IFG) and impaired glucose tolerance (IGT) in predicting type 2 diabetes in a longitudinal community-based cohort of Hong Kong Chinese.]

Available online with your NHS OpenAthens account

[Precision Medicine to Redefine Insulin Secretion and Monogenic Diabetes-Randomized Controlled Trial \(PRISM-RCT\) in Chinese patients with young-onset diabetes: design, methods and baseline characteristics](#)

O C.K., Fan Y.N., Fan B, et al. *BMJ Open Diabetes Research and Care* 2024;12:e004120

[**Introduction:** We designed and implemented a patient-centered, data-driven, holistic care model with evaluation of its impacts on clinical outcomes in patients with young-onset type 2 diabetes (T2D) for which there is a lack of evidence-based practice guidelines.]

Freely available online

[Real-World Effectiveness of the Gla-300 + Cap + App Program in Adult Users Living with Type 2 Diabetes in Taiwan.](#)

Wang C.Y., Zhou F.L., Gandhi A.B., et al. *Diabetes Therapy* 2024, 15(6): 1389-1401.

[**Introduction:** Health2Sync (H2S) is a digital health technology platform that provides coaching and titration support to patients with diabetes. The Mallya cap converts a conventional insulin pen into a smart connected device that can automatically synchronize dose values and associated timestamps (upon injection) to the H2S platform. This single-arm real-world study evaluated the effectiveness of insulin glargine 300 U/mL (Gla-300) combined with H2S and Mallya cap (Gla-300 + Cap + App program) on clinical outcomes among users with type 2 diabetes (T2D) in Taiwan.]

Freely available online

[Real-world sex differences in type 2 diabetes patients treated with GLP-1 receptor agonists](#)

Piccini S, Favacchio G, Morengi E, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111689.

[**Aims:** To evaluate the determinants of cardiovascular (CV) protection in men and women treated with glucagon-like peptide-1 receptor agonists (GLP1-RA).]

Available online with your NHS OpenAthens account

[Sex, race, and BMI in clinical trials of medications for obesity over the past three decades: a systematic review](#)

Alsaqaaby M.S., Cooney S, Le Roux C.W., et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.414-421.

[Medications for obesity have been studied in various populations over the past three decades. We aimed to quantify the baseline demographic characteristics of BMI, sex, age, and race in randomised clinical trials (RCTs) across three decades to establish whether the population studied is representative of the global population affected by the disease. Clinical trials of 12 medications for obesity (ie, orlistat, naltrexone–bupropion, topiramate–phentermine, liraglutide, semaglutide, lorcaserin, sibutramine, rimonabant, taranabant, tirzepatide, retatrutide, and orforglipron) published from Jan 20, 1999, to Nov 12, 2023, were assessed through a systematic review for methodological quality and baseline demographic characteristics. 246 RCTs were included, involving 139 566 participants with or without type 2 diabetes. Most trials over-recruited White, female participants aged 40 years or older with class 1 (30.0–34.9 kg/m²) and class 2 (35.0–39.9 kg/m²) obesity; older participants, those with class 3 (≥40.0 kg/m²) obesity, non-White participants, and male participants were under-recruited. Our systematic review suggests that future trials need to recruit traditionally under-represented populations to allow

for accurate measures of efficacy of medications for obesity, enabling more informed decisions by clinicians. It is also hoped that these data will help to refine trial recruitment strategies to ensure that future studies are relevant to the population affected by obesity.]

Available online with your NHS OpenAthens account

Tirzepatide 5, 10 and 15 mg versus injectable semaglutide 0.5 mg for the treatment of type 2 diabetes: An adjusted indirect treatment comparison

Osumili B, Fan L, Paik J.S., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111717.

[**Aims:** To compare the efficacy and safety of tirzepatide 5, 10 and 15 mg with subcutaneous semaglutide 0.5 mg as second-line treatment for adults with type 2 diabetes mellitus, after metformin monotherapy, using adjusted indirect treatment comparisons (aITCs).]

Available online with your NHS OpenAthens account

Unveiling contrasts in microbiota response: A1c control improves dysbiosis in low-A1c T2DM, but fails in high-A1c cases—a key to metabolic memory?

Napoli T.F., Cortez R.V., Sparvoli L.G., et al. *BMJ Open Diabetes Research and Care* 2024;12:e003964

[**Introduction:** Type 2 diabetes mellitus (T2DM) is associated with dysbiosis in the gut microbiota (MB). Individually, each medication appears to partially correct this. However, there are no studies on the response of the MB to changes in A1c. Therefore, we investigated the MB's response to intensive glycemic control.]

Freely available online

Use of melatonin supplements and risk of type 2 diabetes and cardiovascular diseases in the USA: insights from three prospective cohort studies

Li Y, Huang T, Redline S, et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.404-413.

[**Background:** Use of melatonin supplements has been increasing substantially in both children and adults in the USA; however, their long-term cardiometabolic effects remain unclear. We aimed to assess the associations between regular use of melatonin supplements and the risk of developing type 2 diabetes or cardiovascular disease in adults.]

Available online with your NHS OpenAthens account

Reports

Reverse the trend: reducing type 2 diabetes in young people

Diabetes UK; 2024.

<https://diabetes-resources-production.s3.eu-west-1.amazonaws.com/resources-s3/public/2024-05/Reverse%20the%20Trend%20-%20Reducing%20type%20diabetes%20in%20young%20people.pdf>

[This report reveals a 40% rise in type 2 diabetes diagnoses in younger people between 2016–17 and 2022–23. There are now almost 168,000 people under 40 in the UK who live with type 2 diabetes, an increase of more than 47,000 since 2016–17. Diabetes UK is calling on all political parties to commit to tackling the alarming rise in cases of type 2 diabetes among this age group.]

Freely available online

Glucose monitoring and control

Articles

[Are the variations in ECG morphology associated to different blood glucose levels? implications for non-invasive glucose monitoring for T1D paediatric patients](#)

Andellini M, Castaldo R, Cisuelo O, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111708.
[Aims: Recent clinical trials and real-world studies highlighted those variations in ECG waveforms and HRV recurrently occurred during hypoglycemic and hyperglycemic events in patients with diabetes. However, while several studies have been carried out for adult age, there is lack of evidence for paediatric patients. The main aim of the study is to identify the correlations of variations in ECG Morphology waveforms with blood glucose levels in a paediatric population. Methods: T1D paediatric patients who use CGM were enrolled. They wear an additional non-invasive wearable device for recording physiological data and respiratory rate. Glucose metrics, ECG parameters and HRV features were collected, and Wilcoxon rank-sum test and Spearman's correlation analysis were used to explore if different levels of blood glucose were associated to ECG morphological changes. Results: Results showed that hypoglycaemic events in paediatric patients with T1D are strongly associated with variations in ECG morphology and HRV. Conclusions: Results showed the opportunity of using the ECG as a non-invasive adding instrument to monitor the hypoglycaemic events through the integration of the ECG continuous information with CGM data. This innovative approach represents a promising step forward in diabetes management, offering a more comprehensive and effective means of detecting and responding to critical changes in glucose levels.]

Available online with your NHS OpenAthens account

[Association between continuous glucose monitoring metrics and clinical outcomes in adults with type 1 diabetes in a real-world setting](#)

McQueen R.B., Perez-Nieves M, Alonso G.T., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111690.

[Aims: Continuous glucose monitoring (CGM) metrics can assist diabetes management. Consensus statements recommend > 70 % time in range (TIR) and ≤ 36 % glucose coefficient of variation (CV). However, how these targets perform in clinical practice is unknown. This retrospective, longitudinal cohort study analyzed relationships between TIR, CV, glycated hemoglobin (HbA1c), and hypoglycemia in a real-world setting.]

Available online with your NHS OpenAthens account

[Associations Between HbA1c and Glucose Time in Range Using Continuous Glucose Monitoring in Type 1 Diabetes: Cross-Sectional Population-Based Study.](#)

Eliasson B, Allansson Kjölhede E, Salö S, et al. *Diabetes Therapy* 2024, 15(6): 1301-1312.

[Introduction: Continuous glucose monitoring (CGM) introduces novel indicators of glycemic control.]

Freely available online

[The effects of policosanol supplementation on blood glucose: A systematic review and dose-response meta-analysis of randomized controlled trials](#)

Amini M.R., Kazeminejad S, Jalalzadeh M, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111709.

[Previous studies have assessed how supplementing with policosanol affects blood sugar levels. The outcomes, nevertheless, were not constant. Multiple electronic databases were searched including ISI Web of Science, Cochrane Library, PubMed, Google Scholar, and Scopus until February 9, 2023. To assess the effects of policosanol on glucose, we employed a random-effects or fixed-effects meta - analysis approach to examine the weighted mean differences (WMDs) and associated 95 % confidence

intervals (CI) before and after policosanol and placebo administration. The final analysis comprised a total of 25 trials with 2680 participants. Compared to the control group, policosanol supplementation significantly reduced blood glucose levels (WMD: -2.24 mg/dl; 95 % CI: -4.05, -0.42, $P = 0.01$). Findings from subgroup analysis revealed a significant reduction of policosanol supplementation on glucose levels in period of less than 24 weeks, and in individuals below 50 years of age. Additionally, the reduction was statistically significant in dosage of 10 mg/day. Our dose-response analysis indicates no evidence of a non-linear relationship between policosanol dose and duration and changes in glucose levels (P -nonlinearity = 0.52, and P -nonlinearity = 0.52, respectively). Policosanol supplementation might improve blood glucose. Further trials with more complex designs are required to confirm the findings.]
Available online with your NHS OpenAthens account

[The effectiveness of chia seed in improving glycemic status: A systematic review and meta-analysis](#)

Pam P, El Sayed I, Asemani S, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103065.

[**Aims:** This systematic review and meta-analysis aims to evaluate the effectiveness of chia seeds in improving glycemic status, including fasting blood glucose (FBG), glycated hemoglobin (HbA1c), and insulin.]

Available online with your NHS OpenAthens account

[Genetic association of glycemic traits and antihyperglycemic agent target genes with the risk of lung cancer: A Mendelian randomization study](#)

Sun W, Zhang X, Li N, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103048.

[**Aims:** To evaluate the potential causal effect of glycemic traits on lung cancer and investigate the impact of antihyperglycemic agent-target genes on lung cancer risk.]

Available online with your NHS OpenAthens account

[Glucagon-like peptide-1 receptor agonist and new-onset diabetes in overweight/obese individuals with prediabetes: A systematic review and meta-analysis of randomized trials](#)

Yanto T.A., Vatvani A.D., Hariyanto T.I., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103069.

[**Background:** Glucagon-like peptide-1 receptor agonist (GLP-1RA) is incretin-based therapy that possessed significant glucose lowering and weight loss properties. The present study aims to analyze the efficacy of GLP-1RA in the management of overweight/obese individuals with prediabetes.]

Available online with your NHS OpenAthens account

[Glycemic Control and Body Weight Reduction with Once-Weekly Semaglutide in Colombian Adults with Type 2 Diabetes: Findings from the COLIBRI Study.](#)

Serpa-Díaz D, Llanos-Florez C.A., Uribe R.S., et al. *Diabetes Therapy* 2024, 15(6): 1451-1460.

[**Introduction:** Type 2 diabetes is a prevalent condition. The change in glucose control and body weight with the use of once-weekly semaglutide was evaluated in individuals with Type 2 diabetes in Colombia.]

Freely available online

[Glycemic Control and Obesity Among People With Type 2 Diabetes in Europe and Australia: A Retrospective Cohort Analysis.](#)

Newson R.S., Divino V, Boye K.S., et al. *Diabetes Therapy* 2024, 15(6): 1435-1449.

[**Introduction:** In people with type 2 diabetes (PwT2D) who also have obesity, efforts targeting weight loss, including lifestyle, medication and surgical interventions, are recommended. The objective of this

study was to explore the relationship between glycemic control and obesity among PwT2D in Europe and Australia using recent real-world data and applying consistent methodology across countries.]

Freely available online

[National trends in utilisation of glucose lowering medicines by older people with diabetes in long-term care facilities](#)

Wondimkun Y.A., Caughey G.E., Inacio M.C., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111701.

[**Aims:** To examine national trends in glucose lowering medicine (GLM) use among older people with diabetes in long-term care facilities (LTCFs) during 2009–2019.]

Available online with your NHS OpenAthens account

[Response to lowering plasma glucose is characterised by decreased oxyntomodulin: Results from a randomised controlled trial](#)

Liu Y, Kimita W, Bharmal S.H., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103052.

[**Background:** With the prevalence of diabetes reaching an epidemic level, there is a growing interest in the investigation of its remission. Proglucagon-derived peptides (PGDP) have been shown to have a glucose-regulating effect. However, whether they play a role in diabetes remission remains poorly understood.

Aim: To investigate changes in plasma levels of PGDP in glycaemic responders versus non-responders.]

Available online with your NHS OpenAthens account

[Text messaging to enhance glucose monitoring and self-care in teens with type 1 diabetes: Teens' perceptions predict outcomes](#)

Chen C.W., Serata E, Scheub R, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111719.

[**Aims:** We assessed association between how teens with type 1 diabetes (T1D) perceived a text-messaging (TM) reminder system to check glucose levels and how their perceptions related to their responsiveness to TM reminders to check glucose levels.]

Available online with your NHS OpenAthens account

Hyperglycaemia

Articles

[Predictors of readmission and mortality in adults with diabetes or stress hyperglycemia after initial hospitalization for COVID-19](#)

Chaugule A, Howard K, Simonson D.C., et al. *BMJ Open Diabetes Research and Care* 2024;12:e004167

[**Introduction:** We previously reported predictors of mortality in 1786 adults with diabetes or stress hyperglycemia (glucose>180 mg/dL twice in 24 hours) admitted with COVID-19 from March 2020 to February 2021 to five university hospitals. Here, we examine predictors of readmission.]

Freely available online

[Transient albuminuria in the setting of short-term severe hyperglycemia in type 1 diabetes](#)

Huang J.X., Copeland T.P., Pitts C.E., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108762.

[In a cohort of 1817 children with type 1 diabetes (T1D), short-term hyperglycemia was associated with transient albuminuria (11 % during new-onset T1D without diabetic ketoacidosis (DKA), 12 % during/after DKA, 6 % during routine screening). Our findings have implications regarding future risk of diabetic kidney disease and further investigation is needed.]

Available online with your NHS OpenAthens account

Hypoglycaemia

Articles

[Household food insecurity and associations with hemoglobin A 1c and acute diabetes-related complications in youth and young adults with type 1 diabetes: The SEARCH for Diabetes in Youth study](#)

Malik F.S., Liese A.D., Ellyson A, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111608.

[**Aims:** To examine, among youth and young adults (YYA) with type 1 diabetes (T1D), the association of household food insecurity (HFI) with: 1) HbA 1c and 2) episodes of diabetic ketoacidosis (DKA) and severe hypoglycemia.]

Available online with your NHS OpenAthens account

Insulin therapies

Articles

[The association of insulin responses and insulin sensitivity with cognition in adults with pre-diabetes: The Diabetes Prevention Program Outcomes Study](#)

Shapiro A.L.B., Tjaden A.H., Edelstein S.L., et al. *Journal of Diabetes and Its Complications*, 2024, 38(6), Article 108764.

[**Objective:** Dysglycemia is a significant risk factor for cognitive impairment. However, which pathophysiologic determinant(s) of dysglycemia, impaired insulin sensitivity (ISens) or the islet β -cell's response (IResp), contribute to poorer cognitive function, independent of dysglycemia is not established. Among 1052 adults with pre-diabetes from the Diabetes Prevention Program Outcomes Study (DPPOS), we investigated the relationship between IResp, ISens and cognitive function.]

Available online with your NHS OpenAthens account

[Barriers to the Use of Insulin Therapy and Potential Solutions: A Narrative Review of Perspectives from the Asia-Pacific Region.](#)

Chen R, Aamir A.H., Feroz Amin M, et al. *Diabetes Therapy* 2024, 15(6): 1261-1277.

[The rising prevalence of type 2 diabetes (T2D) is posing major challenges for the healthcare systems of many countries, particularly in the Asia-Pacific Region, in which T2D can present at younger ages and lower body mass index when compared with Western nations. There is an important role for insulin therapy in the management of T2D in these nations, but available evidence suggests that insulin is under-utilized and often delayed, to the detriment of patient prognosis. The authors of this article gathered as an advisory panel (representative of some of the larger Asia-Pacific nations) to identify their local barriers to insulin use in T2D, and to discuss ways in which to address these barriers, with their outputs summarized herein. Many of the key barriers identified are well-documented issues of global significance, including a lack of healthcare resources or of an integrated structure, insufficient patient education, and patient misconceptions about insulin therapy. Barriers identified as more innate to Asian countries included local inability of patients to afford or gain access to insulin therapy, a tendency for some patients to be more influenced by social media and local traditions than by the medical profession, and a willingness to switch care providers and seek alternative therapies. Strategies to address some of these barriers are provided, with hypothetical illustrative case histories.]

Freely available online

Basal Insulinotherapy in Patients Living with Diabetes in France: The EF-BI Study.

Gourdy P, Darmon P, Borget I, et al. *Diabetes Therapy* 2024, 15(6): 1349-1360.

[**Introduction:** Second-generation basal insulins like glargine 300 U/mL (Gla-300) have a longer duration of action and less daily fluctuation and interday variability than first-generation ones, such as glargine 100 U/mL (Gla-100). The EF-BI study, a nationwide observational, retrospective study, was designed to compare persistence, acute care complications, and healthcare costs associated with the initiation of such basal insulins (BI) in a real-life setting in France.]

Freely available online

Comparing advanced hybrid closed loop therapy and standard insulin therapy in pregnant women with type 1 diabetes (CRISTAL): a parallel-group, open-label, randomised controlled trial

Benhalima K, Beunen K, Wilder N.V., et al. *Lancet Diabetes & Endocrinology*, 2024, 12(6), pp.390-403.

[**Background:** Advanced hybrid closed loop (AHCL) therapy can improve glycaemic control in pregnant women with type 1 diabetes. However, data are needed on the efficacy and safety of AHCL systems as these systems, such as the MiniMed 780G, are not currently approved for use in pregnant women. We aimed to investigate whether the MiniMed 780G can improve glycaemic control with less hypoglycaemia in pregnant women with type 1 diabetes.]

Available online with your NHS OpenAthens account

Effect of fixed-ratio insulin combinations on adherence in type 2 diabetes: Systematic review

Elamin M, Barnish M.S. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103072.

[**Aims:** To systematically review evidence on the effect of fixed-ratio combinations on adherence in people with type 2 diabetes.]

Available online with your NHS OpenAthens account

Effectiveness, Simplification and Persistence of IDegLira in Poorly Controlled People with Type 2 Diabetes: A 4-Year Follow-Up Real-World Study.

Di Loreto C, Celleno R, Pezzuto D, et al. *Diabetes Therapy* 2024, 15(6): 1313-1331.

[**Introduction:** Efficacy and safety of the fixed ratio combination of insulin degludec and liraglutide (IDegLira) has been largely documented. However, long-term data are limited. This study aimed at describing persistence in therapy and the effectiveness at 48 months of IDegLira.]

Freely available online

The IDEAL (Insulin therapy DE-intensificAtion with iglarLixi) Randomised Controlled Trial-Study Design and Protocol.

Novodvorský P, Thieme L, Laňková I, et al. *Diabetes Therapy* 2024, 15(6): 1461-1471.

[**Introduction:** Multiple daily injection insulin regimen (MDI) represents the most intensive insulin regimen used in the management of people with type 2 diabetes (PwT2D). Its efficacy regarding glycaemic control is counterbalanced by the increased risk of hypoglycaemia, frequently observed tendency to weight gain and necessity for frequent glucose monitoring. Recent introduction of novel antidiabetic medications with pleiotropic effects reaching far beyond the reduction of glycaemia (HbA1c), such as the glucagon-like peptide 1 receptor agonist (GLP-1 RA), has significantly widened the therapeutic options available for management of T2D. Consequently, there is currently a substantial number of PwT2D for whom the MDI regimen was initiated at a time when no other options were available. Yet, in present times, these individuals could benefit from simplified insulin regimens ideally taking advantage of the beneficial effects of the novel classes of antidiabetic medications. iGlarLixi (Suliqua®) is a once-daily fixed-ratio combination of basal insulin analogue glargine 100 U/ml and a GLP-1 RA lixisenatide.]

Freely available online

Management of diabetes (diet, exercise, lifestyle)

Articles

[Association of low carbohydrate diet score with the risk of type 2 diabetes in an Australian population: A longitudinal study](#)

Kabthymmer R.H., Karim M.N., Itsiopoulos C, et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103049.

[**Aims:** We aimed to assess the association of a low carbohydrate diet score (LCD) with the incidence of type 2 diabetes (T2D) using Melbourne Collaborative Cohort Study (MCCS) data.]

Available online with your NHS OpenAthens account

[Dropout rate in clinical trials of smartphone apps for diabetes management: A meta-analysis](#)

Iqhrammullah M, Refin R.Y., Andika F.F., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111723.

[Applicability of smartphone-based digital health in diabetes management still face challenges due to low user retention or engagement. Thus, this systematic and meta-analysis aimed to estimate the dropout rate from the clinical trials. Search of literature was performed on 4 September 2023 through various databases (PubMed, Scilit, Scopus, Embase, and Web of Science). Those reporting clinical trials of smartphone apps for diabetic controls (either type 1 or type 2 diabetes mellitus) were screened and selected in accordance with PRISMA guideline. Of 5,429 identified records, as many as 36 studies were found eligible with a total of 3,327 patients in the intervention group. The overall dropout rate was 29.6 % (95 %CI: 25 %—34.3 %) with high heterogeneity (p -Het < 0.001; I^2 = 84.84 %). Sample size, intervention duration, patients' age and gender, and cultural adaptation on the app appeared to be non-significant moderators (p > 0.05). In sub-group levels, notably high dropout rates were observed in studies performing cultural adaptation (34.6 %) and conducted in high-income countries (31.9 %). Given the high dropout rate, the engagement level toward diabetic management apps in real-world setting is expected to be low. High heterogeneity in this study, however, requires careful interpretation of the foregoing results. PROSPERO: CRD42023460365 (14 September 2023).]

Available online with your NHS OpenAthens account

[Exploring extended reality for diabetes education & self-management – A bibliometric analysis from 1999 to 2023](#)

Nataraj M, Maiya G.A., Nagaraju S.P., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2024;18(6): 103071.

[**Background:** Diabetes Mellitus (DM) has emerged as a rapidly growing non-communicable disease (NCD) across developed & developing countries. People with diabetes mellitus experience health implications. They develop associated microvascular complications such as neuropathy, nephropathy & retinopathy and macro-vascular complications like coronary artery disease, stroke, amputations etc. These complications increase the socio-economic burden of people living with diabetes. Self-management of diabetes through education is a strong tool that remains under-utilized in clinical settings. The objective of the present study was to explore the role of extended reality for diabetes education & self-management.]

Available online with your NHS OpenAthens account

Mental health and diabetes

Articles

[Psychosocial Self-efficacy and its Association with Selected Potential Factors Among Adults with Type 1 Diabetes: A Cross-Sectional Survey Study.](#)

Stephen D.A., Nordin A, Johansson U.B., et al. *Diabetes Therapy* 2024, 15(6): 1361-1373.

[**Introduction:** The management of type 1 diabetes, a non-preventable chronic disease, leads to a high physical and psychological burden on the individual. Digital health technology can improve a person's psychosocial self-efficacy and thereby contribute to improved diabetes self-care. The aim of this study was to explore associations between psychosocial self-efficacy and demographic-, disease specific-, well-being as well as digital health technology (DHT) related factors among adults with type 1 diabetes.]

Freely available online

Pharmacological management of diabetes

Articles

[Impact of empagliflozin on first and recurrent events leading to or prolonging hospitalisation in the EMPA-REG OUTCOME trial](#)

Inzucchi S.E., Wanner C, Fitchett D, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111715.

[In EMPA-REG OUTCOME, empagliflozin reduced the composite of total events leading to/prolonging hospitalisation for any cause and all-cause mortality by 24 % versus placebo in patients with T2DM and ASCVD, with 67.7 events prevented/1000 patient-years and a low NNT. Effects were sustained and were consistent regardless of the reason for hospitalisation.]

Available online with your NHS OpenAthens account

[Progress toward universal health coverage in Vietnam: Evidence on dispensing trends of diabetes medications from 2015 to 2021](#)

Dang A.K., Vu B.N., Lam T.P., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111691.

[**Aims:** This study aims to investigate the trends in treatment coverage through dispensing diabetes medications in Vietnam from 2015 to 2021. The findings will serve to inform health policies to mitigate the health burden of Type 2 diabetes mellitus (T2DM).]

Available online with your NHS OpenAthens account

[Tirzepatide 5, 10 and 15 mg versus injectable semaglutide 0.5 mg for the treatment of type 2 diabetes: An adjusted indirect treatment comparison](#)

Osumili B, Fan L, Paik J.S., et al. *Diabetes Research and Clinical Practice* 2024, 212: 111717.

[**Aims:** To compare the efficacy and safety of tirzepatide 5, 10 and 15 mg with subcutaneous semaglutide 0.5 mg as second-line treatment for adults with type 2 diabetes mellitus, after metformin monotherapy, using adjusted indirect treatment comparisons (aITCs).]

Available online with your NHS OpenAthens account

Prevention of diabetes (diet, exercise, lifestyle)

Articles

[Prediabetes, participation in the English National Health Service Diabetes Prevention Programme, and associations with COVID-19-related mortality: A whole population study](#)

Barron E, Sharp S.J., Khunti K, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111692.

[**Aims:** To assess the effects of non-diabetic hyperglycaemia (NDH, also known as pre-diabetes), including the impact of the NHS Diabetes Prevention Programme (NHS DPP), on COVID-19-related mortality during the pandemic.]

Available online with your NHS OpenAthens account

[Using the Translating Research into Practice framework to develop a diabetes prevention intervention in primary care: a mixed-methods study.](#)

Tseng E, Smith K, Clark J.M., et al. *BMJ Open Quality* 2024;13(2):e002752.

[**Background:** Pre-diabetes affects one-third of US adults and increases the risk of type 2 diabetes. Effective evidence-based interventions, such as the Diabetes Prevention Program, are available, but a gap remains in effectively translating and increasing uptake of these interventions into routine care.]

Freely available online

Teenagers with diabetes

Articles

[Text messaging to enhance glucose monitoring and self-care in teens with type 1 diabetes: Teens' perceptions predict outcomes](#)

Chen C.W., Serata E, Scheub R, et al. *Diabetes Research and Clinical Practice* 2024, 212: 111719.

[**Aims:** We assessed association between how teens with type 1 diabetes (T1D) perceived a text-messaging (TM) reminder system to check glucose levels and how their perceptions related to their responsiveness to TM reminders to check glucose levels.]

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Further reading

We do not have space to include in this bulletin all the articles from the diabetes journals we consulted. We have therefore included links below to the table of contents for the most recent issues of the journals to which we have full text access.

[BMJ Open Diabetes Research & Care](#)

[Diabetes Therapy](#)

[Diabetes & Metabolic Syndrome: Clinical Research & Reviews](#)

[Diabetes Research and Clinical Practice](#)

[Journal of Diabetes and Its Complications](#)

[The Lancet Diabetes & Endocrinology](#)

You may also be interested in [Diabetes Update](#) (published by Diabetes UK) "a quarterly publication for professionals working in diabetes healthcare and research. Combining news, features, fact sheets and treatment overviews, the magazine is an accessible source of authoritative, up-to-date information about diabetes care and research. Diabetes Update is free of charge to Professional Members of

Diabetes UK. As a Professional Member, you will also automatically receive our healthcare professional e-newsletter every month.”

E-learning courses

MKUH have developed an e-learning course for staff – **430 Diabetes Insulin Safety**.

You can access this course (and other courses on diabetes) through the ESR portal at <https://my.esr.nhs.uk>. Please contact the library for help in finding and enrolling on the courses.

NHS OpenAthens - Self-register at <https://openathens.nice.org.uk/>

You will need your own NHS OpenAthens account to access some of the articles in this bulletin. Select **Milton Keynes University Hospital NHS Foundation Trust** as your organisation. Your username will be generated after you submit the online registration form. Look out for an automated email from ‘OpenAthens’ in your Inbox; click on the activation link to set your password.

Please email library@mkuh.nhs.uk if you would like help with accessing any of the items signposted in this bulletin. If you require further information on a specific topic, do get in touch.

We’re happy to help you with literature searches, search skills training and advice, keeping you up to date, and general references enquiries.

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