

Diabetes

Current Awareness Bulletin

September 2026

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General

Bearing metabolism in mind: towards integrated care

The Lancet Diabetes & Endocrinology. *Lancet Diabetes & Endocrinology*, 2026, 14(7), p.533.

[Metabolic disease and psychiatric disorders have historically been treated as separate conditions, yet the evidence for a bidirectional link is strong. Although the elevated risk of depression in people with diabetes and obesity is well-documented and has been highlighted on many occasions in *The Lancet Diabetes & Endocrinology*, it is perhaps less appreciated that people with psychiatric illnesses also experience high rates of cardiometabolic disease. Crucially, this risk exists independently of psychotropic medication use. The mortality gap between the general population and people with severe mental illness is firmly established; what is less often recognised is that this is caused predominantly by cardiovascular causes rather than suicide.]

Diabetes-driven oxidative stress and calcium dysregulation in gametogenesis and early fertilization

Siddiqui S.F., Siddiqui H.F., Maggio V., et al. *Journal of Diabetes and Its Complications*, 2026, 40(7), Article 109345.

[Diabetes mellitus is associated with chronic hyperglycemia, metabolic instability and systemic oxidative stress, all of which adversely affect reproductive function in both males and females. Increasing evidence indicates that sustained reactive oxygen species (ROS) production and disrupted intracellular calcium (Ca^{2+}) signaling represent central mechanisms linking diabetes to impaired gametogenesis and early fertilization failure. In both oocytes and spermatozoa, oxidative stress and Ca^{2+} dysregulation promote mitochondrial dysfunction, DNA damage, defective chromatin remodeling and increased apoptotic susceptibility. These alterations compromise meiotic progression, reduce gamete competence and impair the highly coordinated Ca^{2+} -dependent events required for fertilization and early embryonic development. Emerging studies further suggest that diabetes-related microvascular injury, hormonal imbalance and local inflammatory signaling exacerbate oxidative and Ca^{2+} -mediated disturbances within reproductive tissues. Disruption of antioxidant defense systems, impaired mitochondrial quality control and altered Ca^{2+} -handling machinery collectively create a maladaptive intracellular environment that undermines reproductive capacity. This review integrates molecular, experimental and clinical evidence supporting a central role for the ROS- Ca^{2+} -mitochondrial axis in diabetic reproductive dysfunction. We also discuss evolving therapeutic strategies, including targeted antioxidants, Ca^{2+} -modulating agents and molecular interventions that aim to restore redox and Ca^{2+} homeostasis. Understanding these intersecting pathways may identify novel translational targets to improve fertility outcomes in patients with diabetes.]

Genetics of pancreatic agenesis: a 21-year international cohort study

Hinton K.E., Flanagan S.E., Houghton J.A.L., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.539-541.

[Pancreatic agenesis results from failure of the pancreas to develop, causing neonatal diabetes and exocrine pancreatic insufficiency. ¹ Typically, patients are initially diagnosed with insulin-dependent diabetes in the first 6 months of life, with pancreatic agenesis clinically diagnosed by detecting severely reduced pancreatic size on abdominal imaging, ² or if exocrine pancreatic insufficiency is confirmed through faecal elastase measurement; however, investigations for pancreatic agenesis are not routinely undertaken. ¹ Symptoms of exocrine insufficiency, such as steatorrhea and malabsorption, are non-specific and often go undetected. If untreated, exocrine insufficiency can result in failure to thrive.]

Prevalence, incidence, mortality, and years of life lost to diabetes from 1996 to 2024 in Denmark

Wibaek R., Kosjerina V., Byberg S., et al. *BMJ Open Diabetes Research and Care* 2026;14: e006129

[**Introduction:** Population-based surveillance is essential for quantifying the burden of diabetes and monitoring temporal changes. In Denmark, nationwide health registers enable long-term surveillance of type 1 diabetes (T1D) and type 2 diabetes (T2D). We aimed to estimate trends in prevalence, incidence, mortality and years of life lost to diabetes in Denmark from 1996 to 2024.]

Children with diabetes

Behaviour change techniques and physical activity outcomes in interventions for children with type 1 diabetes: A scoping review

Gill S., Grieve N., Van Heerden L., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113321.

[Children with type 1 diabetes (T1D) are less likely to meet physical activity guidelines and be physically active than their peers. This scoping review aimed to identify and describe existing physical activity interventions for children with T1D. Six databases were systematically searched for peer reviewed articles published in English from the year 2000 until June 1, 2025 Interventions for children with T1D were included if they reported physical activity as an outcome. Intervention details were extracted, and behaviour change techniques (BCTs) were coded using the BCT Taxonomy (v1). Twelve studies were included. Sample sizes ranged from 8 to 42 participants; mean age was 11.70 ± 3.88 years. Median intervention length was 11 weeks. Accelerometry was the most frequently used modality ($n = 7$) to measure physical activity. Three interventions observed significant improvements in physical activity. All studies reported a range of BCT combinations. On average, a total of 5 BCTs were

used (max = 9, min = 3) for each intervention. No clear association was found between BCTs (number and/or type) used and physical activity improvements. This review highlights the paucity of physical activity interventions for children with T1D. Results suggest that certain BCTs may be promising, yet warrant further exploration in subsequent studies.]

Biological and Social Risk Factors for Predicting Type 2 Diabetes in Youth with Prediabetes: Review of Existing Prediction Models

Jang S., Ma S., Hsia D.S., et al. *Diabetes Therapy* 2026, 17(7): 911–919.

[With the rising prevalence of type 2 diabetes (T2D) among children and adolescents, the ability to predict the progression of prediabetes to T2D in youth is imperative, as it significantly affects long-term health and quality of life. A number of biological and social risk factors have been identified in literature. Additionally, a growing body of literature illustrates the use of machine learning techniques to identify those with prediabetes or T2D in adults. A prediction model identifying adults with prediabetes who are most likely to progress to T2D has been suggested; however, to date, no such predictive algorithm in youth with prediabetes, a population with a high rate of spontaneous regression to normoglycemia, has been developed. Machine learning (ML) techniques can be applied to potentially identify novel risk factors for youth-onset T2D progression. The use of ML techniques with longitudinal data would enrich the prediction models to accurately identify children with prediabetes who are at the most risk of developing T2D without intervention. This narrative review summarizes the literature on biological and social risk factors for T2D progression and the use of ML to predict progression to T2D.]

Stage dependent alterations in PBMC mitochondrial bioenergetics in pediatric obesity: from insulin resistance to type 2 diabetes

Rechtsteiner M., Kröber S., Al-Robaity S., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113300.

[**Background:** Pediatric obesity is associated with early-onset cardiometabolic disorders related to metabolic syndrome (MetS), including insulin resistance (IR) and type 2 diabetes (T2DM). Mitochondrial dysfunction plays a key role in their pathogenesis, but evidence on mitochondrial health in children and adolescents with obesity remains limited.]

Treatment Options for Patients with Maturity-Onset Diabetes of the Young (MODY): A Systematic Review of Literature: 2026 Update

Zagaroli L., Di Berardino A., Petragnano F., et al. *Diabetes Therapy* 2026, 17(7): 959–983.

[**Introduction:** Maturity-onset diabetes of the young (MODY) is a rare monogenic form of diabetes characterized by impaired insulin secretion and genetic and clinical heterogeneity. Accurate molecular diagnosis enables precision medicine by guiding gene-specific treatment, improving glycemic control, and avoiding unnecessary therapies. Since our previous systematic review in 2020, new studies have further clarified therapeutic strategies and emerging treatment options. This review updates the evidence on pharmacological management of MODY and its clinical implications.]

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

Cardiovascular Disease

Age-sex effect on concurrent prevalence of hypertension and diabetes in Indian subjects: A hospital-based study of more than 56000 adults visiting for preventive checkup

Indrayan A., Saini S., Kumar P., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103458.

[**Aims:** In view of the substantially increased risk of adverse outcomes, this study aims to determine the concurrent prevalence of hypertension and diabetes, quantify the synergy factor, and assess its age trend in a segment of the Indian population.]

Association between liver fibrosis severity and impaired myocardial glucose metabolism in subjects with different degrees of glucose tolerance

Succurro E., Mazza V., Gattuso I., et al. *BMJ Open Diabetes Research and Care* 2026;14: e006005

[**Introduction:** Increasing evidence suggests that liver fibrosis is an independent risk factor for cardiovascular disease. However, the mechanisms underlying this increased risk are still unsettled. The aim of this study was to explore the relationship between myocardial glucose metabolism and the severity of liver fibrosis.]

Early cardiovascular–kidney–metabolic progression with tirzepatide: population definition and clinical interpretation

Fauchier L. and Guglieri M. *Diabetes Research and Clinical Practice* 2026, 237: 113331.

[We read with interest the study by Wu et al. reporting a lower risk of cardiovascular–kidney–metabolic (CKM) stage progression with tirzepatide compared with GLP-1 receptor agonists (GLP-1RAs) ¹. While the consistency of the findings is noteworthy, several issues regarding population definition and clinical interpretation warrant discussion.]

Glucagon-like peptide-1 receptor agonists versus sodium-glucose cotransporter-2 inhibitors in adults with type 2 diabetes and atrial fibrillation: a multicenter comparative effectiveness cohort study of cardiovascular and arrhythmic outcomes

Islam M.M. and Okere A.N. *Diabetes Research and Clinical Practice* 2026, 237: 113346.

[**Aims:** To compare glucagon-like peptide-1 receptor agonists (GLP-1RA) with sodium-glucose cotransporter-2 inhibitors (SGLT-2i) for cardiovascular, atrial fibrillation (AF) disease course, and safety outcomes in adults with concurrent AF and type 2 diabetes.]

The longitudinal relationship between carotid arterial disease and retinopathy complicating type 2 diabetes: The Fremantle diabetes study phase II

Drinkwater J.J., Chan C., Maxwell S., et al. *Journal of Diabetes and Its Complications*, 2026, 40(7), Article 109344.

[**Aims:** To investigate whether i) ultrasonographically-assessed carotid arterial disease (CAD) is associated with diabetic retinopathy (DR) progression and retinal microangiopathy measured by optical coherence tomography angiography (OCTA), and ii) baseline DR prevalence and/or OCTA parameters are associated with CAD progression in type 2 diabetes.

Risk stratification in early-stage Cardiovascular-Kidney-Metabolic Syndrome: The Potency of visceral adiposity and insulin resistance surrogate indices

He L., Lin H., Zhang X., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113336.

[Cardiovascular-kidney-metabolic (CKM) syndrome defines a pathophysiological continuum linking obesity, metabolic dysfunction, chronic kidney disease, and cardiovascular disease. Stages 0–3 represent a critical subclinical window for reversible intervention, yet conventional risk stratification remains rudimentary. Body mass index (BMI) fails to capture visceral adiposity and metabolic heterogeneity. Recently, surrogate indices integrating anthropometric and metabolic data, such as waist-to-height ratio (WHtR), visceral adiposity index (VAI), and the metabolic score for visceral fat (METS-VF), have emerged as scalable tools for identifying disproportionate visceral-metabolic burden. This review synthesizes the longitudinal evidence and biological rationale, highlighting mechanisms such as mitochondrial stress and lipid peroxidation, for these markers in early-stage CKM. We demonstrate that indices reflecting visceral lipotoxicity and insulin resistance offer superior prognostic resolution compared to traditional measures during the preclinical phase. Furthermore, we propose a stage-oriented framework to integrate these low-cost markers into clinical management, while delineating unresolved issues regarding ethnicity-specific thresholds and nonlinear risk patterns.

Navigating plant-based diets: increased cardiovascular risk in those with unhealthy plant-based

dietary plans in people with pre-diabetes or diabetes.

Butalia S. and Nerenberg K. *Evidence-Based Nursing* 2026;29(3):167.

[**Context:** Given the global epidemic of diabetes and pre-diabetes, there are continuing interests in population-level interventions to reduce the risk of cardiovascular disease (CVD) in this high-risk population. General healthy behaviours (nutrition and exercise) remain the foundation to management despite clinical research gaps on specific nutritional interventions for CVD prevention in those with diabetes or pre-diabetes. This study by Zhuang *et al* addresses an important gap by examining the association of different levels of adherence to plant-based dietary plans and the risk of CVD in people with pre-diabetes or diabetes.¹

Eye Diseases

Albuminuria predicts diabetic retinopathy and consequences of polyneuropathy in individuals with type 2 diabetes and chronic kidney disease: an observational nationwide Danish cohort study

Turner C.S., Hornum M., Ballegaard E.L.F., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113328.

[**Aims:** Although albuminuria is an established prognostic marker in individuals with diabetes and chronic kidney disease (CKD), less is known about the association between albuminuria and retinal and neurological complications in large, unselected populations with type 2 diabetes and established CKD. We investigated the association of urine albumin-creatinine-ratio (UACR) on prevalence and incidence of microvascular complications in individuals with CKD.]

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Kidney Disease

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A comparison of the effects of tirzepatide and dulaglutide on major kidney events in people with type 2 diabetes: pre-specified exploratory analyses of the SURPASS-CVOT trial

Zoungas S., D'Alessio D., Pavo I., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.544-557.

[**Background:** In the SURPASS-CVOT trial, tirzepatide, a dual incretin agonist that targets the glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptors, was shown to be non-inferior to dulaglutide for the primary composite cardiovascular outcome in people with type 2 diabetes and atherosclerotic cardiovascular disease. Here, we report the results of a pre-specified exploratory analysis of SURPASS-CVOT that aimed to assess major kidney events in the overall population, low-

to-moderate-risk chronic kidney disease population, and high-risk chronic kidney disease population.]

Corrigendum to “Disease management, outcomes, and healthcare resource utilization in real-life clinical practice of diabetes and diabetic kidney disease in Finland” [Diabet. Res. Clin. Pract. 231 (2026) 113067]

Laine M.K., Haapala M., Uusi-Rauva K., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113301.

[The authors regret, a one-word error in the abstract. The sentence should read: “Factors positively associated with UACR test adherence included older age, male sex, T2D, **lower** HbA_{1c} values, municipality, and calendar year.”]

Global burden of chronic kidney disease due to type 2 diabetes in adults from 1990 to 2021, with exploratory projections to 2036: a systematic analysis of the Global Burden of Disease Study 2021

Wang Y. and Chen H. *Diabetes Research and Clinical Practice* 2026, 237: 113340.

[**Aims:** To assess the global burden of chronic kidney disease due to type 2 diabetes (CKD-T2D) in adults from 1990 to 2021.]

Integrative proteogenomic analyses implicate KLK13 as a glycaemia-linked circulating protein in diabetic kidney disease

Liu D., Lin X., Xie J., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113329.

[**Background:** Diabetic kidney disease (DKD) is a major complication of diabetes, but circulating proteins linking glycaemic stress to kidney injury remain unclear. We aimed to identify glycaemia-linked plasma proteins associated with DKD risk and assess their treatment responsiveness.]

Prevalence of diabetic kidney disease in Brazil: A systematic review with meta-analysis

Chichelero G.M., Pessil L.S., Viegas G.M., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113327.

[This systematic review assesses the prevalence of diabetes kidney disease (DKD) in Brazil, examining geographical variations and associated risk factors. Following PRISMA guidelines and PROSPERO registration, searches were conducted in PubMed, EMBASE, and LILACS for studies up to and including December 2025. Two researchers independently performed screening, data extraction, and quality assessment. Pooled prevalence was estimated using a random-effects meta-analysis (generalized linear mixed model). Subgroup analyses included diabetes type, duration, diagnostic criteria, healthcare setting, and region. A total of 46 studies were included (n = 24,893 individuals). The pooled prevalence of DKD among Brazilian adults was 27.06% (95% CI 22.40–32.29; I² 98%). Higher prevalence was associated with longer diabetes duration: 33.28% for ≥10 years versus 24.32% for <10 years. Estimates varied by diabetes type: type 1, 28.93% [18.06–42.92] and type 2, 28.61% [20.95–37.73]. Diagnostic criteria significantly influenced results: albuminuria only (32.30%), estimated glomerular filtration rate (eGFR) only (17.70%), and combined eGFR/albuminuria (30.69%). Regional data showed higher prevalence in the South (41.0%), with limited data available for the North and Northeast. High heterogeneity highlights the need for multicenter studies using standardized definitions to improve national surveillance.]

Risk stratification in early-stage Cardiovascular-Kidney-Metabolic Syndrome: The Potency of visceral adiposity and insulin resistance surrogate indices

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heterogeneity. Recently, surrogate indices integrating anthropometric and metabolic data, such as waist-to-height ratio (WHtR), visceral adiposity index (VAI), and the metabolic score for visceral fat (METS-VF), have emerged as scalable tools for identifying disproportionate visceral-metabolic burden. This review synthesizes the longitudinal evidence and biological rationale, highlighting mechanisms such as mitochondrial stress and lipid peroxidation, for these markers in early-stage CKM. We demonstrate that indices reflecting visceral lipotoxicity and insulin resistance offer superior prognostic resolution compared to traditional measures during the preclinical phase. Furthermore, we propose a stage-oriented framework to integrate these low-cost markers into clinical management, while delineating unresolved issues regarding ethnicity-specific thresholds and nonlinear risk patterns.]

Social Determinants of Health, Cardio-Renal-Metabolic Disease, Multimorbidity, and prognosis in Community-Dwelling Adults: A prospective Chinese study

Yi S., Qiu W., Huang Q., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113298.

[**Aims:** This study aimed to examine the associations of social determinants of health (SDOH) with transitions from health to first cardio-renal-metabolic disease (FCRMD), progression to cardio-renal-metabolic multimorbidity (CRMM), and all-cause death among community-dwelling Chinese adults.]

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

Diabetic Foot

Antibiotic-loaded bone substitutes in the surgical management of diabetic foot osteomyelitis: Current evidence and clinical perspectives

Monami M., Ragghianti B., Masulli M., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113294.

[Diabetic foot osteomyelitis (DFO) represents a severe manifestation of diabetic foot syndrome and a leading cause of lower-limb amputation globally. Surgical intervention is frequently required, often leaving residual bone defects that can promote persistent infection and impair healing. In this context, bioabsorbable antibiotic-loaded bone substitutes have emerged as a potential adjunct in surgical management. These biomaterials enable high local antibiotic delivery within the surgical cavity, exceeding minimum inhibitory concentrations for common pathogens, while avoiding systemic toxicity. In parallel, they act as fillers of dead space and provide an osteoconductive scaffold that supports bone regeneration. This narrative review summarizes the pathophysiology of DFO, current surgical principles, and the properties of available antibiotic-loaded bone substitutes. We also critically appraise the clinical evidence supporting their use. Available studies suggest promising outcomes in terms of infection control, wound healing, and limb preservation. However, the current evidence base is largely limited to observational and heterogeneous studies, with variability in study design, patient selection, and biomaterial characteristics. Overall, while these technologies appear to be a valuable adjunct in selected cases, robust prospective and randomized trials are needed to better define their indications, comparative effectiveness, and long-term clinical impact in the management of diabetic foot osteomyelitis.]

Discomfort Avoidance and Desire for Normality Are Decision-Making Drivers of Footwear Choice in Underserved Communities at Risk of Diabetic Foot Ulcer.

Anil K., Sharma N., Patel S., et al. *Journal of Foot and Ankle Research* 2026;19(3): e70186.

[**Background:** Diabetes-related foot ulceration (DFU) is a serious complication that can lead to lower limb amputation or death. Custom-made footwear is a key preventative strategy, yet adherence to use is often low. The factors influencing decision-making for footwear use remain unclear, particularly among underserved groups such as people from low socioeconomic and South Asian backgrounds. This study aimed to identify the psychological mechanisms underlying footwear choice and adherence in people with diabetes from low socioeconomic and South Asian populations.]

The Effect of Micronutrient Intake and Supplementation on Prevalent Diabetes-Related Foot Ulcer and Incident Hospitalisation for Diabetes-Related Foot Ulcer in Type 2 Diabetes: The Fremantle Diabetes Study Phase 2.

Hamilton E.J., Davis W.A., Siru R., et al. *Journal of Foot and Ankle Research* 2026;19(3): e70181.
[**Objective:** To determine whether micronutrient intake and/or supplementation is associated with prevalent diabetes-related foot ulcer (DFU) and/or incident hospitalisation for DFU in type 2 diabetes.]

How much pressure causes a diabetic foot ulcer? An 18-month prospective study investigating plantar pressure characteristics in the lead up to ulceration

Chatwin K.E., Abbott C.A., Rajbhandari S.M., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113293.

[**Aims:** High plantar pressure is associated with diabetic foot ulcer (DFU) development; however, previous studies are limited to a 'snapshot' plantar pressure measurement taken at study onset or post-DFU healing. The aim of this prospective study was to provide a unique insight into sustained plantar pressures developed during the three months preceding ulceration.]

Morbidity and Mortality Rates in People with Diabetes Mellitus With an Active Charcot's Neuro-Osteoarthropathy: A 15-Year Single-Center Retrospective Analysis

Patel D., Gooday C., Nunney I., et al. *Diabetes Therapy* 2026, 17(7): 985–996.

[**Introduction:** Diabetes related Charcot neuro-osteoarthropathy (CN) of the foot is associated with increased risks of amputation and premature mortality. We aimed to report the amputation and mortality rates of people with active CN and identify participant and CN characteristics associated with these adverse outcomes.]

A multidisciplinary expert consensus framework for diabetic foot disease management in the Gulf Cooperation Council: A modified Delphi study

Al Ghafri T., Al Harthi S., Al Mahrizi A., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113344.

[**Background:** The Gulf Cooperation Council (GCC) countries face an escalating epi-demic of diabetes, with prevalence rates substantially exceeding global averages and projections indicating a 96% increase by 2035. Diabetic Foot Disease (DFD) represents one of the most serious and costly complications of diabetes, yet regionally adapted clinical guidance is absent across all six GCC nations.]

Relation Between Calcaneal Fat Pad Thickness and Plantar Foot Ulceration in Patients With Type 2 Diabetes Mellitus.

Van den Nieuwenhof S.J., Heijmans M.H.M., Van der Reijden J.J., et al. *Journal of Foot and Ankle Research* 2026;19(3): e70166.

[**Introduction:** Thinning of fat pads may elevate the risk of developing plantar foot ulcers potentially resulting in lower-extremity amputations. Evaluating whether fat pad thickness is associated with plantar foot ulceration could aid in early risk detection. This study therefore aims to compare fat pad thickness between type 2 diabetes mellitus (T2DM) patients with and without plantar foot ulcers using MRI.]

Temporal trends of selected diabetic foot deformities and risk factors: an exploratory analysis from a tertiary diabetes clinic

Štötl I., Blagus R., Urbančič-Rovan V. *Diabetes Research and Clinical Practice* 2026, 237: 113299.

[**Aims:** While classical diabetic foot risk factors are well established, their temporal progression remains insufficiently understood, particularly for deformities. Therefore, we aimed to analyze trends in selected diabetic foot risk factors and to design a practical monitoring model for long-term clinical use.]

Diabetes and pregnancy

The effects of dietary and physical exercise interventions among women with a history of gestational diabetes mellitus on cardiometabolic risk: A systematic review and meta-analysis

Abdulsalam R., Michalopoulou M., Jebb S.A., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113335.

[We systematically analysed the literature to assess whether diet and physical activity interventions delivered in high-income countries (HICs) could affect cardio-metabolic biomarkers among women with gestational diabetes mellitus (GDM) in pregnancy. Ten databases and two trial registries were searched from inception until 16/03/2026. Studies were included if they were randomised controlled trials in HICs that allocated women with GDM to diet and/or physical activity interventions, or a control group, and reported outcomes at 12 ± 3 months after the intervention. The review was preregistered in PROSPERO (CRD42024597324; CRD42024518659). We used random effects *meta*-analyses to pool data. We included 17 studies with 6,535 participants. There was evidence that interventions led to a significant reduction in weight (-0.89 kg (95% CI -1.74 , -0.03); $I^2 = 57.7\%$), waist circumference (difference -0.79 cm (95% CI -1.45 , -0.13); $I^2 = 0\%$), and systolic blood pressure (-1.60 mmHg (95% CI -3.16 , -0.04), $I^2 = 72.1\%$). However, there was no evidence of a significant effect of these interventions on blood lipids, glycaemic outcomes, diastolic blood pressure, or type 2 diabetes incidence. The review highlights the need for high quality research on reducing the risk of long-term cardiometabolic disease among women with a history of GDM in HICs.]

Overlap of Gestational Diabetes Mellitus and Pre-eclampsia: A Scoping Review

Janeline L., PramodKumar T.A., Deepa M., et al. *Diabetes Therapy* 2026, 17(7): 937–958.

[Gestational diabetes mellitus (GDM) and preeclampsia (PE) are among the most common medical complications in pregnancy, with prevalence rates of 10–25% and 3–9.4%, respectively. Both conditions are important causes of maternal and neonatal morbidity and pose considerable risks to maternal and fetal health. GDM and PE are traditionally viewed as distinct clinical entities. However, they share several common risk factors, including advanced maternal age, obesity, family history of metabolic disease, dyslipidemia and genetic predisposition. The two conditions also have overlapping pathophysiological pathways, particularly involving metabolic and vascular dysfunctions such as insulin resistance, chronic inflammation and endothelial dysfunction. This article reviews the prevalence of GDM and PE, the risk factors common to the two conditions and biomarkers that may aid in early identification of these disorders. The report also discusses clinical implications of the overlap between the two disorders, with a plea for integrated management strategies. Finally, the article also highlights potential preventive measures and underscores the importance of multidisciplinary approaches to improve pregnancy outcomes in those with GDM and PE.]

Sex-specific associations of sedentary behaviour and physical activity with placental and fetal IL-6 in pregnant women with obesity. Impact on neonatal adiposity in the DALI randomised controlled trial

Acosta-Manzano P., Hill D.J., Leopold-Posch B., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113292.

[**Aims:** To investigate: i) the association of sedentary time (ST) and moderate-to-vigorous physical activity (MVPA) during pregnancy with placental interleukin-6 (*IL-6*) expression and cord venous *IL-6* content in women with obesity; and ii) cord venous markers mediating the relationship of ST/MVPA and placental *IL-6* with neonatal adiposity.]

Diabetes mellitus Type 1

Behaviour change techniques and physical activity outcomes in interventions for children with type 1 diabetes: A scoping review

Gill S., Grieve N., Van Heerden L., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113321.

[Children with type 1 diabetes (T1D) are less likely to meet physical activity guidelines and be physically active than their peers. This scoping review aimed to identify and describe existing physical activity interventions for children with T1D. Six databases were systematically searched for peer reviewed articles published in English from the year 2000 until June 1, 2025 Interventions for children with T1D were included if they reported physical activity as an outcome. Intervention details were

extracted, and behaviour change techniques (BCTs) were coded using the BCT Taxonomy (v1). Twelve studies were included. Sample sizes ranged from 8 to 42 participants; mean age was 11.70 ± 3.88 years. Median intervention length was 11 weeks. Accelerometry was the most frequently used modality ($n = 7$) to measure physical activity. Three interventions observed significant improvements in physical activity. All studies reported a range of BCT combinations. On average, a total of 5 BCTs were used ($\text{max} = 9$, $\text{min} = 3$) for each intervention. No clear association was found between BCTs (number and/or type) used and physical activity improvements. This review highlights the paucity of physical activity interventions for children with T1D. Results suggest that certain BCTs may be promising, yet warrant further exploration in subsequent studies.]

Corrigendum to “The results of ProHCL: Patient-reported outcomes in people living with type 1 diabetes on hybrid closed-loop insulin pump therapy – experiences from the NHS England pilot”. [Diabetes Res. Clin. Pract. 232 (2026) 113084]

Ding Y., Sheng W., Shi J., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113170.

[The authors regret that an incorrect version of **Figure 1a** was published. The correct **Figure 1a** is provided below:

Figure 1a: The INsulin Dosing Systems: Perceptions, Ideas, Reflections, and Expectations (INSPIRE) Questionnaire for PwT1D.]

Early-stage type 1 diabetes: is there a role for lifestyle modifications?

Papanikolaou T., Andrews R.C., Cockcroft E., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.536-538.

[Type 1 diabetes is no longer an abrupt diagnosis but the culmination of a measurable autoimmune process, with presymptomatic stages defined by the presence of islet autoantibodies and gradual β -cell decline that unfolds over months or years. ¹ The expansion of screening initiatives—including population-based programmes such as the UK Early Surveillance for Autoimmune Diabetes (ELSA) study ²—is rapidly reshaping this landscape. Individuals at high risk can be identified early, creating a critical window to explore strategies that might alter the disease trajectory before insulin dependence develops. ²]

Epidemiological and clinical insights from Type 1 Diabetes Global Registries: A systematic review and meta-analysis

Chauhan R., Solanki R., Saiyed M., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103455.

[Background: Type 1 diabetes (T1D) incidence is rising globally, especially among children, with Systematic evaluation of these registries can highlight disparities in diagnosis, access, and management while supporting cross-regional learning to improve care delivery.

Objective: To assess the global burden of T1D by synthesizing key epidemiological indicators, including incidence, complications, and management approaches in children aged 0-14 years, and to characterize registry populations by sociodemographic and clinical features to identify care disparities.]

Risk factors and serum amino acid metabolic profiles of patients with type 1 diabetes and concomitant mild cognitive impairment: A cross-sectional study

Zhang Y., Yang X., Zhang Y., et al. *Journal of Diabetes and Its Complications*, 2026, 40(7), Article 109332.

[Aims: Mild cognitive impairment (MCI) is one of the chronic complications of type 1 diabetes (T1DM). Alteration in amino acid metabolism is commonly observed in diseases associated with cognitive impairment, but its role in type 1 diabetes-associated mild cognitive impairment (T1DM-MCI) remains unclear. We aimed to explore the risk factors for T1DM-MCI and identify potential metabolites that can help determine the absence or presence of MCI in T1DM.]

Safety of GLP-1 receptor agonists in type 1 diabetes: a systematic review and meta-analysis

Kateel R., Parida A., Chogtu B., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113270.

[Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are increasingly explored as adjuncts in Type 1 Diabetes Mellitus (T1DM), though concerns regarding hypoglycaemia and diabetic ketoacidosis (DKA) limit their adoption. To comprehensively evaluate their safety, we conducted a systematic review and *meta*-analysis following PRISMA guidelines. Major databases were searched through June 2025. Outcomes included hypoglycaemia, DKA, gastrointestinal adverse events, and study withdrawals. Twenty-five studies (23 RCTs, 2 observational) were included. Updated pooled data established a neutral risk for overall hypoglycaemia (RR 1.01; Moderate certainty) and serious adverse events (RR 0.89; Moderate certainty). Furthermore, no significant increase was observed for severe hypoglycaemia (RR 0.74; Low certainty) or DKA (RR 0.60; Very Low certainty), though statistical imprecision warrants cautious interpretation. However, GLP-1 RAs significantly increased nausea (RR 2.89) and vomiting (RR 3.10), driving a twofold increase in early treatment withdrawal (RR 2.02; Moderate certainty). Subgroup analysis revealed that overall tolerability significantly improves after six months of therapy. In conclusion, in pooled analyses, GLP-1 RAs were not associated with increased severe hypoglycaemia or DKA, although evidence remains limited. However, a substantial early gastrointestinal burden necessitates cautious patient selection and stepwise dose-titration to maximize patient tolerability and long-term adherence.]

Type 1 diabetes intervention clusters in resource-limited settings: a systematic review and economic evaluation

Basu S., Zafra-Tanaka J.H., Beran D. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.570-580.

[**Background:** Over 9 million people are living with type 1 diabetes globally, with a disproportionate burden in resource-limited settings where access to care remains constrained. Individual interventions have shown modest benefits, but coordinated intervention clusters could achieve greater health impact. We aimed to evaluate the cost-effectiveness of intervention clusters for type 1 diabetes management in resource-limited settings.]

Teplizumab for delaying the onset of stage 3 type 1 diabetes in people 8 years and over with stage 2 type 1 diabetes [NICE]

National Institute for Health and Care Excellence (NICE); 2026.

<https://www.nice.org.uk/guidance/ta1176>

[Evidence-based recommendation on teplizumab (Tzield) for delaying the onset of stage 3 type 1 diabetes in people 8 years and over with stage 2 type 1 diabetes.]

Diabetes mellitus Type 2

Are we closer to surpassing residual renal risk in type 2 diabetes?

Karalliedde J. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.534-536.

[In the past decade, SGLT2 inhibitors (canagliflozin, dapagliflozin, and empagliflozin), the non-steroidal mineralocorticoid receptor antagonist finerenone, and the GLP-1 receptor agonist semaglutide have shown benefits on kidney disease and cardiovascular disease endpoints in people with type 2 diabetes. The above treatments showed significant risk reductions in renal endpoints; however, residual renal risk persisted in many people. ^{1]}

Association Between Anthropometric Indices and Presence of Type 2 Diabetes Mellitus in Obesity

Shaikh S., Das S., Kota S., et al. *Diabetes Therapy* 2026, 17(7): 997–1014.

[**Introduction:** Obesity and type 2 diabetes mellitus (T2DM) are global challenges, with obesity increasing risk of T2DM. Body mass index (BMI), the conventional measure of obesity, may not accurately predict metabolic risk, especially in Asian individuals. Evaluation of alternative

anthropometric indices may offer additional approaches for risk assessment.]

Associations of grip strength and muscle mass with incident complications in patients with type 2 diabetes: a prospective cohort study

Ding Y., Sheng W., Shi J., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113330.

[**Background:** Declines in muscle strength and mass are common in individuals with type 2 diabetes (T2D) and are associated with adverse clinical outcomes. However, it remains unclear whether muscle strength or muscle mass provides better prognostic information in this population. This study aimed to examine the associations of grip strength and muscle mass with incident complications in patients with T2D.]

Data-driven subtypes of type 2 diabetes and risk of dementia, stroke, and brain structural changes in the UK Biobank

Han S., Zhou Y., Sturkenboom M., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113311.

[**Aims:** Type 2 diabetes (T2D) is associated with increased risks of dementia and stroke with heterogeneity. We aimed to identify data-driven T2D subtypes and examine associations with dementia, stroke, mortality, and brain structure.]

Effects of exercise training on bone health in elderly people with type 2 diabetes without osteoporosis: A randomised clinical trial

Balducci S., Haxhi J., Mattia L., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113303.

[**Aims:** To assess the effects of exercise on non-invasive measures of bone health in elderly individuals with type 2 diabetes without osteoporosis.]

Identification of Patient Clusters with Distinct Disease Progression Patterns Utilizing a Nationwide Finnish Population with Type 2 Diabetes

Nygård K., Ryhänen R., Kortteenniemi A., et al. *Diabetes Therapy* 2026, 17(7): 1043–1065.

[**Introduction:** Variability in the clinical presentation of patients with type 2 diabetes (T2D) is high and underlines the need for more personalized patient care. This nationwide study aimed to describe characteristics, treatment patterns, and disease progression of Finnish patients with T2D (N = 302,987), and to identify patient clusters with distinct progression patterns based on the occurrence of diabetes-related complications.]

Living alone with diabetes: a phenomenological study.

Susianty S., Mailani F., Sari I., et al. *British Journal of Community Nursing* 2026;31(7): 309-316.

[**Background:** Diabetes mellitus, particularly type 2 diabetes, is a growing global health burden requiring effective long-term self-management. Behaviours such as diet, physical activity, medication adherence and glucose monitoring are strongly influenced by cultural beliefs, social support and family involvement. However, limited evidence exists on how individuals living alone manage their diabetes, particularly in communal settings.]

Aims: This research explores how older people living alone in Western Sumatra manage their type 2 diabetes mellitus.]

Multi-ancestry polygenic risk scores for the prediction of type 2 diabetes and complications in diverse ancestries

Huerta-Chagoya A., Kim J., Mandla R., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.558-569.

[**Background:** Polygenic risk scores (PRSs) improve prediction of the development of type 2 diabetes over the use of clinical risk factors alone; however, they perform poorly in populations of non-European ancestry, limiting their global clinical utility. We aimed to deliver comprehensive and rigorously tested

multi-ancestry PRSs for prediction in type 2 diabetes.]

Predicting type II diabetes mellitus in young and middle-aged adults: A machine learning approach using the Utah population database

Meeks H.D., Smith K.R., Curtis D.S., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113325.

[**Aims:** To develop a machine learning framework for predicting type 2 diabetes mellitus (T2DM) using administrative data and electronic health records (EHR) that could be applied in healthcare settings.]

Prevalence, trends, and determinants of early-onset type 2 diabetes in northwest China: a sex-stratified analysis of ~10 million community-dwelling population

Wang J., Peng H., Tao J., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113324.

[**Purpose:** To investigate the trends and sex-specific risk factors of early-onset type 2 diabetes in northwest China.]

The relationships between figure rating scale, anthropometric measures, and cardiometabolic outcomes: the AADM study

Doumatey A.P., Idris A., Zhou J., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103456.

[**Introduction:** Direct measurement of anthropometrics can be impractical in research. Validated Figure Rating Scales (FRS) offer an alternative, but their validity across populations remains limited.

Objectives: This study aimed to analyze the relationships between figure rating scale (FRS) and anthropometric measures (body mass index (BMI); waist circumference (WC), and waist-to-hip ratio (WHR)) and to specifically evaluate FRS at the time of enrollment and lifetime body size, an FRS-derived score as risk factors for cardiometabolic traits including type 2 diabetes (T2D).]

Trends in type 2 diabetes incidence and BMI at diagnosis by age, sex, and ethnicity, 2011–2024: a population-based analysis of the English National Diabetes Audit.

Holman N., O'Keefe J., Gregg E., et al. *The Lancet - Regional Health Europe*; 2026.
[https://www.thelancet.com/journals/lanep/article/PIIS2666-7762\(26\)00176-6/fulltext](https://www.thelancet.com/journals/lanep/article/PIIS2666-7762(26)00176-6/fulltext)

[**Background:** Early-onset type 2 diabetes is associated with aggressive disease progression, long-term health burden and reduced life expectancy. Trends in incidence have not been comprehensively described.]

Diabetic subtypes (genetic)

Lipidomics analysis to assess metabolic complications in familial partial lipodystrophy type 2

Koue-Chon-Lim J., Beyene H.B., Giles C., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113297.

[**Aims:** Familial Partial Lipodystrophy type 2 (FPLD2) is a severe form of metabolic syndrome associated with marked insulin resistance and complications like lipoatrophic diabetes. The aim of this study was to use lipidomics to better understand metabolic complications in FPLD2 and the benefit of the lipidomic-derived metabolic BMI score (mBMI) to characterize metabolic risk.]

Diagnosis

Body shape index and body roundness index: Novel anthropometric indices to identify diabetes mellitus among the Indian population

Verma M., Halder P., Jeer G., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103468.

[**Aims:** We aimed to compare the discriminatory performance of Body Shape Index and Body Roundness Index with traditional anthropometric measures, including body mass index, waist

circumference, and waist-to-height ratio, for identifying prevalent diabetes among Indian adults.]

From static lipids to dynamic risk: The role of atherogenic index of plasma in prediabetes

Berthold H.K., Gouni-Berthold I., Rizzo M. *Journal of Diabetes and Its Complications*, 2026, 40(7), Article 109346.

[Prediabetes occupies a uniquely precarious position in the cardiometabolic disease continuum. ¹ It is common, often silent, and biologically heterogeneous. While some individuals remain stable or revert to normoglycemia, a substantial proportion progress to overt diabetes, frequently accompanied by cardiovascular and renal complications. ²³ The central challenge for clinicians and public health systems alike is not simply to identify prediabetes, but to distinguish those individuals in whom metabolic deterioration is already underway from those in whom risk remains relatively low. ^{4]}

Improving Precision Diagnosis and Treatment of Diabetes in Low-Resource Settings in Africa Through Structured Clinical Phenotyping: A Narrative Review

Kibirige D., Niwaha A., Katte J.C., et al. *Diabetes Therapy* 2026, 17(7): 921–935.

[Precision diabetes care is an evolving evidence-based, personalised approach that uses an individual's clinical, metabolic, and genetic data to accurately classify them into distinct subgroups and tailor diabetes prevention, treatment, and monitoring strategies. The use of genomics data, advanced biomarker testing, and artificial intelligence-driven diagnostics has improved precision diabetes care in high-income countries. This has enabled accurate identification of diabetes subtypes and targeted treatment. Despite the rising burden of diabetes, high rates of undiagnosed cases, and emerging evidence of atypical manifestations of diabetes in Africa, such advancements in precision diabetes care remain unavailable in many low-resource settings, directly impacting treatment outcomes. To improve precision diabetes care in low-resource settings in Africa, we suggest using a structured clinical phenotyping approach based on routinely collected clinical characteristics. In this review, we explore how using a combination of readily available clinical characteristics, such as age at diagnosis, body mass index, clinical presentation, family history of diabetes, and coexisting medical conditions, can help healthcare professionals in Africa to diagnose and treat different diabetes subtypes accurately. By adopting a pragmatic, structured clinical phenotyping approach, African healthcare systems can deliver region-specific, cost-effective precision diabetes care without overreliance on advanced laboratory tests and digital technologies.]

Screening gaps for prediabetes in US young adults under current American diabetes Association criteria

Tang R., An J., Zhang Y. *Diabetes Research and Clinical Practice* 2026, 237: 113339.

[Among US young adults aged 18–34 years with prediabetes in NHANES 2007–2016, one in three (32.7%) would not have qualified for screening under current American Diabetes Association criteria, suggesting a substantial missed opportunity for early identification and prevention.]

Skeletal muscle health and the development of prediabetes in middle-aged and older adults: mediated by inflammation and lipid indices

Shi X., Xie Y., Yang Y., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103453.

[**Aims:** This study aims to examine the effect of relative muscle strength (RMS) on the progression to diabetes or regression to normoglycemia in individuals with prediabetes.]

Glucose monitoring and control

Effects of time-restricted eating on glycemic control and variability in individuals with overweight/obesity and prediabetes: A secondary analysis of the RESET randomized controlled trial

Kloura C., Jensen M.M., Ekblond T.S., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113295.

[**Aim:** The aim of this exploratory analysis was to investigate effects of time-restricted eating (TRE) on glycemic control and variability in adults with prediabetes.]

Melatonin supplementation improves insulin resistance markers but not fasting glucose: a systematic review and meta-analysis of randomized controlled trials

Dias G.Z.T., Tessarin G.W.L., Ferreira R.L., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113290.

[This study evaluated whether oral melatonin supplementation influences glycemic outcomes in humans through a systematic review and *meta*-analysis of randomized controlled trials (RCTs). A systematic search of major electronic databases was conducted to identify RCTs evaluating the effects of melatonin supplementation on metabolic outcomes in adults. Studies reporting fasting glucose, glycated hemoglobin (HbA1c), fasting insulin, or homeostatic model assessment of insulin resistance (HOMA-IR) were included. Data were pooled using a random-effects model. Heterogeneity was assessed using the I^2 statistic, and *meta*-regression analyses were performed to explore potential moderators. Statistical analyses were conducted using Jamovi software. Thirty-one RCTs were included in this systematic review. Quantitative synthesis comprised 27 studies reporting fasting glucose, nine studies reporting HbA1c, seven studies reporting fasting insulin, and four studies reporting HOMA-IR. Melatonin doses ranged from 1 to 10 mg/day, with intervention durations between 14 and 365 days. The *meta*-analysis showed no significant reduction in fasting glucose levels. However, improvements were observed in secondary metabolic outcomes related to glycemic control and insulin resistance, including HbA1c, fasting insulin, and HOMA-IR. Melatonin supplementation did not significantly reduce fasting glucose but may improve markers of glycemic control and insulin sensitivity, suggesting a modulatory role in metabolic regulation.]

An observational study on glycemic trajectories during ascent, stay, and descent in a 45-day high-altitude exposure

Zhang B., Sun M., Yang Z., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113295.

[**Aims:** To characterize glycemic dynamics and heterogeneity in response patterns during a 45-day high-altitude expedition among healthy adults.]

Optimising HbA1c monitoring intervals in patients with type 2 diabetes based on glycaemic control status: a target trial emulation study.

Wang B., Tse E.T.U., Li S., et al. *BJGP Open* 2026;July:BJGPO.2025.0020.

[**Background:** The appropriate glycated haemoglobin (HbA1c) monitoring intervals for patients with type 2 diabetes mellitus (T2DM) remain unclear.

Aim: To determine appropriate HbA1c monitoring intervals for patients with T2DM across different glycaemic control categories.]

Insulin therapies

The 1-hour plasma glucose as a specific marker for early-phase insulin secretory defects in young adults with obesity

Yuan M., Zhao S., Lu C., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113338.

[**Aims:** To determine whether 1-hour plasma glucose (1-h PG) during an OGTT outperforms other glycemic markers (FPG, 0.5-h PG, 2-h PG, HbA_{1c}) in identifying impairments in insulin secretion, sensitivity, and β -cell compensation.]

Clinical utility of the twiist Automated Insulin Delivery System: first study with twist

Ruiz A., Mcdonough A., Snow K., et al. *BMJ Open Diabetes Research and Care* 2026;14: e006307

[Introduction: Randomized controlled trials and real-world studies have demonstrated that automated insulin delivery (AID) systems enhance glycemic control and mitigate hypoglycemia risk in individuals with type 1 diabetes. This study evaluated the safety, effectiveness, and usability of the twiist AID System on glycemic outcomes in adults with type 1 diabetes.]

Insulin-to-carbohydrate ratio intensification during Ramadan in young people using advanced hybrid closed-loop therapy: A prospective quasi-experimental pilot study

Deeb A., Yaqoob N., Beck R.H., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113337.

[Aims: This study evaluated whether intensifying the insulin-to-carbohydrate ratio (ICR) during the non-fasting period is associated with improved glycemic control without increasing hypoglycemia in young people with type 1 diabetes (T1D) using advanced hybrid closed-loop (AHCL) therapy during Ramadan.]

Long noncoding RNAs in insulin signaling: mechanisms, metabolic roles, and therapeutic prospects

Bhattacharyya S., Choudhury D., Vedeshachaitanya B., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113320.

[Background: Insulin signaling is a central regulator of metabolic homeostasis, controlling glucose uptake, lipid metabolism, protein synthesis, and pancreatic β -cell function. Dysregulation of this pathway contributes to insulin resistance, obesity, and type 2 diabetes mellitus (T2DM). Long noncoding RNAs (lncRNAs) have emerged as important regulators of gene expression and cellular signaling; however, their roles in modulating insulin signaling remain incompletely understood.

Objective: This review summarizes current advances in lncRNA-mediated regulation of insulin signaling and its implications in metabolic disease.

Nephrin is produced in visceral adipose tissue in humans and associates with insulin resistance

Rebelos E., Rossi C., Honka M.J., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113312.

[Aims: Nephrinuria and podocinuria have been proposed as early markers of podocytopathy. We explored whether nephrin and podocin are expressed in subcutaneous (SAT) and visceral adipose tissue (VAT), and report their determinants.]

Management of diabetes (diet, exercise, lifestyle)

Is weight cycling clinically harmful?

Magkos F. and Stefan N. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.594-607.

[Worldwide, approximately half of the general population is actively attempting to lose weight. However, weight loss is typically followed by substantial weight regain, often leading to repeated cycles of loss and gain of bodyweight. Weight cycling has been suggested to be metabolically harmful, in that it could lead to greater rebounds in fat mass and smaller regains in lean (muscle) mass, thereby promoting sarcopenia, lowering metabolic rate, and exacerbating obesity and its metabolic complications (eg, glucose intolerance). In this Personal view, we critically evaluate evidence from studies in humans and animals investigating whether weight cycling has adverse effects on bodyweight, body composition, energy metabolism, and metabolic function. We also briefly discuss potential strategies to mitigate weight regain and its consequences. Overall, the current evidence does not support a causal link between weight cycling per se and clinical harm in people with obesity. Most of the adverse effects reported are likely circumstantial, possibly because of ageing, unintentional weight loss, reverse causality, earlier onset of obesity, repeated obesogenic exposures, or longer cumulative exposure to obesity. Available evidence suggests that the benefits of intermittent weight reduction—such as improved metabolic markers, cardiovascular health, and quality of life—outweigh the potential risks associated with weight fluctuation.]

Nutritional intake changes during GLP-1 receptor agonist therapy: A systematic review and meta-analysis

Quan A.T., Nguyen H.L., Nguyen T.M.T. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103466.

[**Background and aims:** Glucagon-like peptide-1 (GLP-1) receptor agonists, including the dual glucose-dependent insulintropic polypeptide (GIP) and GLP-1 receptor agonist tirzepatide, produce substantial weight loss, yet their effect on objectively measured dietary intake has not been quantitatively synthesized. We assessed their impact on *ad libitum* lunch energy intake.]

Science or Tradition? Strength of Evidence for Footwear Fit Guidelines From Peer-Reviewed Studies of People With Diabetes - A Foot in Diabetes UK Systematic Review.

Jones P.J., Vlachopoulos C., Branthwaite H., et al. *Journal of Foot and Ankle Research* 2026;19(3): e70189.

[**Background:** Footwear fit advice for patients and people with diabetes varies significantly. A review of the strength of evidence for footwear fit standards developed in peer-reviewed studies is urgently needed both to inform future research and guidelines.]

Sleep, lipids, and metabolic health in the Indian obesity epidemic: an integrative review of mechanisms, burden, and breakthroughs

Varghese R.T. and Akurati S. *Diabetes Research and Clinical Practice* 2026, 237: 113319.

[**Background:** India faces a growing obesity epidemic within the context of persistent undernutrition, creating a dual burden with major cardiometabolic consequences. This population is particularly vulnerable to metabolic disease because of the “Asian Indian phenotype,” characterized by increased visceral adiposity and higher metabolic risk at lower body mass index thresholds.]

Objective: To review current evidence on the relationship between sleep health, lipid dysregulation, and metabolic dysfunction in the obesity epidemic in India, with emphasis on epidemiology, biologic mechanisms, and implementation relevance.]

Trends in self-reported current diabetes care use, socioeconomic inequalities, and associated factors in Japan: evidence from the Comprehensive Survey of Living Conditions (1986–2022)

Gyeltshen T., Tanaka H., Katanoda K. *BMJ Open Diabetes Research and Care* 2026;14: e006042

[**Introduction:** Long-term trends in diabetes care use and socioeconomic inequalities are not well described in Japan.]

Mental health and diabetes

Effects of mindfulness-based interventions (MBIs) on psychological outcomes and HbA1C in patients with diabetes: A systematic review and meta-analysis of randomized controlled trials

Reangsing C., Punsuwun S., Pitchalard K., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113322.

[We synthesized the effects of MBIs on psychological outcomes and HbA1c in diabetic patients and conducted subgroup analyses to investigate the sources of heterogeneity. Nine electronic databases were methodically explored from their inception through May 2025. We reviewed studies on the outcomes for individuals with diabetes mellitus who participated in mindfulness-based interventions. A random-effects model was employed to calculate the effect size. The funnel plot, Q statistics, and I² were employed to assess heterogeneity among studies. Across 24 primary studies (N = 1987), 942 participants engaged in mindfulness-based interventions and 955 functioning as controls. Mean age ranged from 18.3 to 66.3 years. Overall, mindfulness-based interventions showed improvement of HbA1c (Hedges' g = 0.564, 95%Confidence interval, CI, 0.221, 0.908, p = 0.001), stress (g = 1.132, 95%CI 0.551, 1.714, p < 0.001), anxiety (g = 1.321, 95%CI 0.569, 2.072, p = 0.001) and depression (g

= 1.059, 95%CI 0.564, 1.555, $p < 0.001$). MBI format, intention-to-treat analysis, concealed allocation, attrition, funding sources, and a priori analysis were modifiers affecting the effect size. To sum up, mindfulness-based therapies markedly improved HbA1c levels and psychological outcomes, among individuals with diabetes mellitus. Future studies with robust designs are warranted. Healthcare professionals may consider using these therapies to improve psychological outcomes and HbA1c levels in individuals with diabetes mellitus.]

Pharmacological management of diabetes

Cagrilintide-semaglutide (CagriSema) as an add-on to basal insulin in adults with type 2 diabetes (REIMAGINE 3): a randomised, double-blind, placebo-controlled, multicentre, phase 3 study.

Rosenstock J., Billings L.K., Gajria R., et al. *Lancet* 2026;408(10549):38-51.

[**Background:** Basal insulin treatment for type 2 diabetes often results in inadequate glycaemic control and is associated with weight gain and increased risk of hypoglycaemia. We aimed to compare the efficacy and safety of a once per week combination of cagrilintide with semaglutide (CagriSema) versus placebo as an add-on to basal insulin in individuals with type 2 diabetes.]

Change in Effectiveness and Safety Parameters After Initiation of SGLT2 Inhibitors for Post-Transplant Diabetes Mellitus: A Real-World Observational Study

Crepaldi M.C., Vedovato M., Morieri M.L., et al. *Diabetes Therapy* 2026, 17(7): 1015–1026.

[**Introduction:** Post-transplant diabetes mellitus (PTDM) is frequent and associated with increased cardiovascular and renal risk. Evidence regarding the long-term effectiveness and safety of sodium–glucose cotransporter 2 (SGLT2) inhibitors in PTDM remains limited.]

Comprehensive drug safety assessment of sodium-glucose co-transporter 2 inhibitors, glucagon-like peptide 1 receptor agonists, and dipeptidyl peptidase 4 inhibitors: A Danish population-based active comparator new user cohort study

Lund L.C., Simonsen E., Pottegård A. *Diabetes Research and Clinical Practice* 2026, 237: 113341.

[**Aims:** To perform active safety monitoring of newer glucose-lowering therapies.]

Correction to *Lancet Diabetes Endocrinol* 2024; 12: 545–57

Lancet Diabetes & Endocrinology, 2026, 14(7), e.10.

[Apperloo EM, Neuen BL, Fletcher RA, et al. *Efficacy and safety of SGLT2 inhibitors with and without glucagon-like peptide 1 receptor agonists: a SMART-C collaborative meta-analysis of randomised controlled trials.*]

Diagnostic accuracy of fibroblast growth factor-21 (FGF-21) and growth differentiation factor-15 (GDF-15) for predicting insulin resistance using triglyceride-glucose Index, HOMA-C-Peptide, and C-peptide-to-glucose ratio in type 2 diabetes: A systematic review and bivariate diagnostic test accuracy meta-analysis

Mustakin Arief M., Nurahmi, et al. *Diabetes Research and Clinical Practice* 2026, 237: 113318.

[Fibroblast growth factor-21 (FGF-21) and growth differentiation factor-15 (GDF-15) are metabolokines associated with insulin resistance in type 2 diabetes, but their pooled diagnostic performance has not been systematically established. We conducted a PRISMA-DTA-compliant systematic review and bivariate diagnostic test accuracy meta-analysis to evaluate the accuracy of FGF-21 and GDF-15, individually and in combination, for predicting insulin resistance using the triglyceride-glucose (TyG) index, HOMA-C-peptide, and C-peptide-to-glucose ratio as reference standards. Six databases were searched from January 2015 to March 2025. Fifteen studies involving 14,832 participants were included. Against TyG, FGF-21 showed pooled sensitivity of 82.4% and specificity of 78.9% (AUC 0.88), while GDF-15 demonstrated slightly higher sensitivity of 85.6% and specificity of 82.1% (AUC 0.91). Combined FGF-21 and GDF-15 testing achieved the best overall performance, with sensitivity of

88.9%, specificity of 86.4%, and AUC of 0.94. TyG was the most discriminating reference standard across both biomarkers. These findings support the potential utility of FGF-21 and GDF-15, particularly in combination, as adjunctive laboratory biomarkers for insulin resistance risk stratification in type 2 diabetes.]

Dose–Response and Clinical Equivalence of Semaglutide and Tirzepatide for Weight Loss in Type 2 Diabetes: A Model-Based Analysis

Builes-Montaña C.E., Suarez-Rodriguez A.F., Alzate-Vinasco M.A. *Diabetes Therapy* 2026, 17(7): 1067–1083.

[**Introduction:** Semaglutide and tirzepatide are highly effective incretin-based therapies for weight reduction in individuals with type 2 diabetes (T2DM). However, direct comparisons across the full range of clinically relevant doses in T2DM are limited. This study aimed to evaluate dose–response relationships and clinical equivalence between semaglutide and tirzepatide using a model-based approach.]

DPP-4 inhibitors in current diabetes care: their foundational role in treating to target

Avogaro A., Fiaccadori E., Rizzo M.R. *Diabetes Research and Clinical Practice* 2026, 237: 113288.

[Despite major advances in glucose-lowering therapies, a substantial proportion of individuals with type 2 diabetes (T2DM) do not achieve recommended glycemic targets, maintaining a high risk of microvascular and macrovascular complications. While current guidelines prioritize agents with proven cardiovascular and renal benefits (treat-to-benefit), optimal glycemic control (treat-to-target) remains a cornerstone of diabetes management. This review supports an integrated therapeutic framework in which both strategies are pursued in parallel and examines the role of dipeptidyl peptidase-4 inhibitors (DPP-4is) within this context. DPP-4is provide clinically meaningful HbA1c reductions, approximately 0.6–1.1%, with a low risk of hypoglycemia, weight neutrality, and a favorable tolerability profile. Cardiovascular outcome trials have established their cardiovascular safety, and they are particularly suitable as add-on treatment to metformin, SGLT-2 inhibitors, or insulin, enabling safe intensification to achieve glycemic targets while maintaining cardiorenal-protective regimens. DPP-4is tolerability makes them specifically indicated for older patients. In contemporary diabetes care, DPP-4is—particularly sitagliptin—remain a versatile option bridging treat-to-target and treat-to-benefit paradigms to support comprehensive cardiovascular-kidney-metabolic (CKM) reduction in T2DM.]

Effects of a 6-week subcutaneous infusion of native GIP alone or as add-on to semaglutide in people with type 2 diabetes: a single-centre, double-blind, parallel-group, randomised, placebo-controlled trial

Helsted M.M., Fonnesbech-Wulff C., Schantz N.L., et al. *Lancet Diabetes & Endocrinology*, 2026, 14(7), pp.581-593.

[**Background:** The long-term glycaemic effects of glucose-dependent insulinotropic polypeptide (GIP) remain unclear. We aimed to assess whether a 6-week subcutaneous infusion of GIP alone and in combination with the GLP-1 receptor agonist semaglutide would enhance glycaemic control in individuals with type 2 diabetes.]

GLP-1 receptor agonists and surgical care: implications for bariatric Procedures, perioperative Outcomes, and nutritional optimization

Elawa Z., Khalil A., Kardousha A., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113332.

[**Background:** Glucagon-like peptide-1 receptor agonists (GLP-1RAs) are increasingly used for obesity and type 2 diabetes and are now frequently encountered in patients undergoing bariatric and other elective surgeries. Their effects on gastric motility, appetite, and nutrient intake have important implications for perioperative safety, surgical outcomes, and nutritional care.

Objectives: To summarize current evidence on the effects of GLP-1RAs on perioperative management, bariatric surgery outcomes, and nutritional optimization in surgical patients.

Glucagon-like peptide-1 receptor agonists and hair loss: A systematic review and meta-analysis

Cheng P.L. and Chang H.C. *Diabetes Research and Clinical Practice* 2026, 237: 113333.

[**Aims:** Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are widely used drugs with applications beyond the management of obesity and diabetes mellitus. This study aimed to investigate the association between GLP-1 RA use and hair loss.]

Real-World Effectiveness of Tirzepatide in Japanese Patients with Type 2 Diabetes: A Multicenter Retrospective Observational Study

Takahashi N., Ohara M., Yokoyama H., et al. *Diabetes Therapy* 2026, 17(7): 1027–1041.

[**Introduction:** Tirzepatide, a dual glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 (GLP-1) receptor agonist, significantly affects glucose and body weight-lowering effects in randomized controlled trials. However, real-world clinical evidence in Japan remains limited. This study aimed to evaluate the real-world effectiveness of tirzepatide on glycemic and metabolic factors in Japanese patients with type 2 diabetes mellitus (T2DM).]

Repurposing GLP-1 receptor agonists and SGLT-2 inhibitors in neurodegeneration and metabolically at-risk populations: *Myth or reality?* An overview of randomized clinical trials

Mourtzos M.A., Patoulas D., Keklikoglou N.M., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113345.

[Neurodegenerative diseases (NDs) are increasingly recognized as multifactorial disorders in which neurometabolic dysfunction intersects with classic pathological processes, including protein misfolding, neuroinflammation, synaptic failure and neurovascular impairment. In parallel, antidiabetic drug classes, particularly glucagon-like peptide-1 receptor agonists (GLP1-RAs) and sodium-glucose cotransporter-2 inhibitors (SGLT-2i) exert pleiotropic effects beyond glycemic control, raising interest in their potential neuroprotective properties. This review provides an in-depth overview of current clinical evidence regarding the repurposing of these agents for NDs. Clinical studies evaluating GLP-1 RAs and SGLT-2i in neurodegenerative and at-risk metabolic populations have yielded heterogeneous results. Early-phase trials and neuroimaging studies suggest potential benefits on regional brain metabolism, connectivity, and selected cognitive domains, whereas large, randomized trials have generally failed to demonstrate consistent effects. Current evidence supports biological plausibility but does not yet establish disease-modifying efficacy of GLP-1 RAs or SGLT-2i in NDs. Future studies will require longer treatment duration, earlier intervention windows, harmonized cognitive and neuroimaging endpoints, and integration of biomarker-guided patient stratification to determine whether targeting systemic and cerebral metabolic pathways can meaningfully alter neurodegenerative trajectories.]

Risk of hair loss associated with glucagon-like peptide-1 receptor agonists in adults with type 2 diabetes: target trial emulation.

Tang H., Zhang B., Lu Y., et al. *BMJ* 2026;394: e100077.

[**Objective:** To examine the association between glucagon-like peptide-1 (GLP-1) receptor agonists and the risk of incident alopecia (hair loss) in adults with type 2 diabetes, compared with sodium-glucose cotransporter-2 (SGLT-2) inhibitors and dipeptidyl peptidase-4 (DPP-4) inhibitors.]

Wernicke's Encephalopathy (WE) Following Semaglutide Treatment for Obesity: A Systematic PRISMA Review of Case-Based Evidence.

Bidesie J and Oudman E. *Obesity* 2026;;doi: 10.1002/oby.70256.

[**Objective:** Glucagon-like peptide-1 receptor agonists are increasingly prescribed for obesity. Although generally considered safe, marked appetite suppression and persistent gastrointestinal adverse effects may increase the risk of nutritional deficiencies. Wernicke's encephalopathy (WE), caused by thiamine deficiency, is a rare but potentially fatal neurological disorder that may result in irreversible cognitive impairment if not promptly recognized and treated. Recently, cases of WE associated with semaglutide

use have been reported. This study aimed to systematically review published case reports of WE occurring after semaglutide treatment for obesity from an endocrinological drug safety perspective.]

Teenagers with diabetes

Albuminuria trajectories following intensive lifestyle intervention with or without bariatric surgery in adolescents with and at risk of type 2 diabetes

Perera K., Baker J., Smallman K., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113296.

[**Aim:** Albuminuria reflects early renal injury and may precede type 2 diabetes, particularly among Māori and Pacific adolescents in New Zealand who experience a high burden of severe obesity. Evidence for renal benefits of bariatric surgery in adolescents is limited. We examined the effect of intensive lifestyle intervention, with or without bariatric surgery, on urine albumin-creatinine ratio (UACR).]

Biological and Social Risk Factors for Predicting Type 2 Diabetes in Youth with Prediabetes: Review of Existing Prediction Models

Jang S., Ma S., Hsia D.S., et al. *Diabetes Therapy* 2026, 17(7): 911–919.

[With the rising prevalence of type 2 diabetes (T2D) among children and adolescents, the ability to predict the progression of prediabetes to T2D in youth is imperative, as it significantly affects long-term health and quality of life. A number of biological and social risk factors have been identified in literature. Additionally, a growing body of literature illustrates the use of machine learning techniques to identify those with prediabetes or T2D in adults. A prediction model identifying adults with prediabetes who are most likely to progress to T2D has been suggested; however, to date, no such predictive algorithm in youth with prediabetes, a population with a high rate of spontaneous regression to normoglycemia, has been developed. Machine learning (ML) techniques can be applied to potentially identify novel risk factors for youth-onset T2D progression. The use of ML techniques with longitudinal data would enrich the prediction models to accurately identify children with prediabetes who are at the most risk of developing T2D without intervention. This narrative review summarizes the literature on biological and social risk factors for T2D progression and the use of ML to predict progression to T2D.]

Increasing trend in prediabetes and obesity among adolescent school children in Chennai city in Southern India

Nanditha R., Susairaj P., Satheesh K., et al. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 2026;20(7): 103454.

[**Background and aims:** In 2006, we reported presence of cardiometabolic abnormalities including impaired fasting glucose (IFG) in 85% of overweight adolescent children. In this study, we assessed the change in the prevalence of IFG and its association with cardiometabolic risk factors among adolescent school children in the low and middle income group after a period of 17 years.]

A mobile device-based ecological momentary assessment in adolescents and young adults with diabetes: a systematic review and meta-analysis

Shapira A., Penman M.C., Schneider S., et al. *Diabetes Research and Clinical Practice* 2026, 237: 113302.

[**Aims:** Mobile ecological momentary assessment (mobile-EMA) enables real-time contextualization of glucose excursions, yet compliance rates in adolescents and young adults (AYA) with diabetes has not been estimated. This systematic review and *meta-* analysis evaluated mobile-EMA protocols and participant compliance in this population.]

Treatment Options for Patients with Maturity-Onset Diabetes of the Young (MODY): A Systematic Review of Literature: 2026 Update

Zagaroli L., Di Berardino A., Petragliano F., et al. *Diabetes Therapy* 2026, 17(7): 959–983.

[Introduction: Maturity-onset diabetes of the young (MODY) is a rare monogenic form of diabetes characterized by impaired insulin secretion and genetic and clinical heterogeneity. Accurate molecular diagnosis enables precision medicine by guiding gene-specific treatment, improving glycemic control, and avoiding unnecessary therapies. Since our previous systematic review in 2020, new studies have further clarified therapeutic strategies and emerging treatment options. This review updates the evidence on pharmacological management of MODY and its clinical implications.]