EASD 2024

> The event celebrated six decades of groundbreaking progress in diabetes research and care, showcasing exciting new data aimed at transforming the future of diabetes care and prevention

Congress Review

Review of the European Association for the Study of Diabetes (EASD) Annual Meeting 2024

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ATTENDEES were warmly welcomed to a "feast of science" at the 60th European Association for the Study of Diabetes (EASD) Annual Meeting in Madrid, Spain, by President Chantal Mathieu. The event celebrated six decades of groundbreaking progress in diabetes research and care, showcasing exciting new data aimed at transforming the future of diabetes care and prevention. Mathieu invited the audience to attend the Plaza de Toros de Las Ventas (a bullfighting arena in Madrid) to celebrate the 60th anniversary with drinks, nibbles, and music, joking that there would be "no bulls" present.

Looking back on 60 years of EASD, Mathieu spoke a little about the origins of the Annual Meeting. In July 1964, the founding meeting brought together just 66 participants from 11 European countries. It was here that the decision to establish the EASD was made, with headquarters in Geneva and an official European journal. The first official meeting followed in April 1965, in Montecatini Terme, Italy. Fast forward to last year, and the creation of the Global EASD Council was announced, and in September 2024, the council came together for the first time. The goals of the council are to raise global awareness of diabetes and related metabolic diseases, advise on global activities, whilst addressing specific regional needs, and enhance communication between the EASD Board and the leadership of national and regional organisations, fostering stronger partnerships across the world.

Now, with 12,117 participants from 130 countries, this is the biggest annual meeting yet. This year, for the 60th Meeting, the Congress has grown to impressive amounts: there are 62 symposia, 48 oral sessions, 8 late-breaking oral sessions, 102 short oral discussions, 5 late-breaking short oral discussion sessions, 19 study group and NGO sessions, and 51 industry sessions. Mathieu proudly announced that, out of 2,089 abstracts selected this year, 275 have been classed as late-breaking, highlighting the significant volume of groundbreaking research in the field.

Mathieu acknowledged the contributions of study groups who work closely with EASD, with research focusing on a range of areas such as artificial insulin delivery, the link between diabetes and cancer, genetics, pregnancy, and more. She emphasised that research alone is not enough, and thus, the EASD has actively engaged in shaping policy through the European Diabetes Forum.

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One key initiative is the forum's pledge for the 2024 European elections, outlining key priorities for advancing diabetes care in Europe.

She also highlighted the work of the Guideline Development Committee, which is dedicated to creating thorough and scientifically rigorous guidelines. In the pipeline are guidelines on 'Diabetes Distress', and 'Technology in Type 2 Diabetes', while noting that the topic of a third guideline is still being finalised, urging everyone to stay tuned.

This year, the EASD has taken an important step forward by ensuring that the voices of people with diabetes are heard. They have commissioned a patient advisory committee, which will include individuals living with diabetes to participate in the development of new guidelines. On the topic of patient-centred care, Mathieu encouraged all attendees to support the pledge to 'End Diabetes Stigma', which has already garnered over 2,700 signatures from more than 230 organisations across 107 countries.

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Mathieu concluded the Presidential Address by encouraging attendees to join the EASD, emphasising that collaboration is essential to produce groundbreaking research and enable policy changes that will ultimately "shape the future of diabetes". She also stressed the importance of collaborations between academia and industry, noting the critical role of industry in transforming academic discoveries into real-world innovations, therapies, and insights that will one day lead to the prevention and cure of diabetes.

To learn more about some of the groundbreaking research and innovative developments in diabetes healthcare, read on for key highlights presented at the 2024 Annual Meeting, and return next year for our coverage of EASD 2025 in Vienna, Austria!

Research Confirms Link Between Microvascular Complications and Periodontitis

NEW research presented at EASD 2024 revealed that there is a higher risk of periodontitis in individuals with microvascular complications of diabetes.

In patients with diabetes, inflammation can lead to periodontitis, in which the buildup of bacterial plaque triggers an immune response that damages the gums and supporting bone structures, often leading to tooth loss if left untreated. Previous research has suggested a link between diabetes-related microvascular complications, such as retinopathy and neuropathy, and an increased risk of periodontitis. However, previous studies have often been limited in scope and have failed to account for confounding factors like smoking, diabetes duration, and socioeconomic status, and therefore have reported inconsistent findings.

Therefore, researchers from Steno Diabetes Center Aarhus, Denmark, and National Dental Centre Singapore, analysed data from over 15,000 individuals with Type 2 diabetes as part of the Health in Central Denmark study. The analysis included 15,922 participants with an average age of 63.7 years. The study accounted for a wide range of confounding factors, including lifestyle habits and sociodemographic variables. The analysis revealed that there was a significant association between microvascular complications and moderate/severe periodontitis. In particular, diabetic retinopathy increased the risk of periodontitis by 21%, and diabetic neuropathy increased the risk by 36%. In individuals with both complications, the likelihood of gum disease was 51% higher. Moreover, the presence of dyslipidaemia further heightened the risk of developing periodontitis.

These findings suggest that oral health evaluations should be prioritised in patients with diabetes as part of a multidisciplinary approach when treating individuals with Type 2 diabetes, particularly those with microvascular complications. Additionally, the authors highlighted that dentists should be aware of the link between oral health and microvascular complications and recommend screening for these conditions. Furthermore, the authors noted that periodontitis can lead to difficulties with nutrition, communication, and social interactions. Therefore, identifying those as high-risk is crucial for both oral health and psychological well-being.

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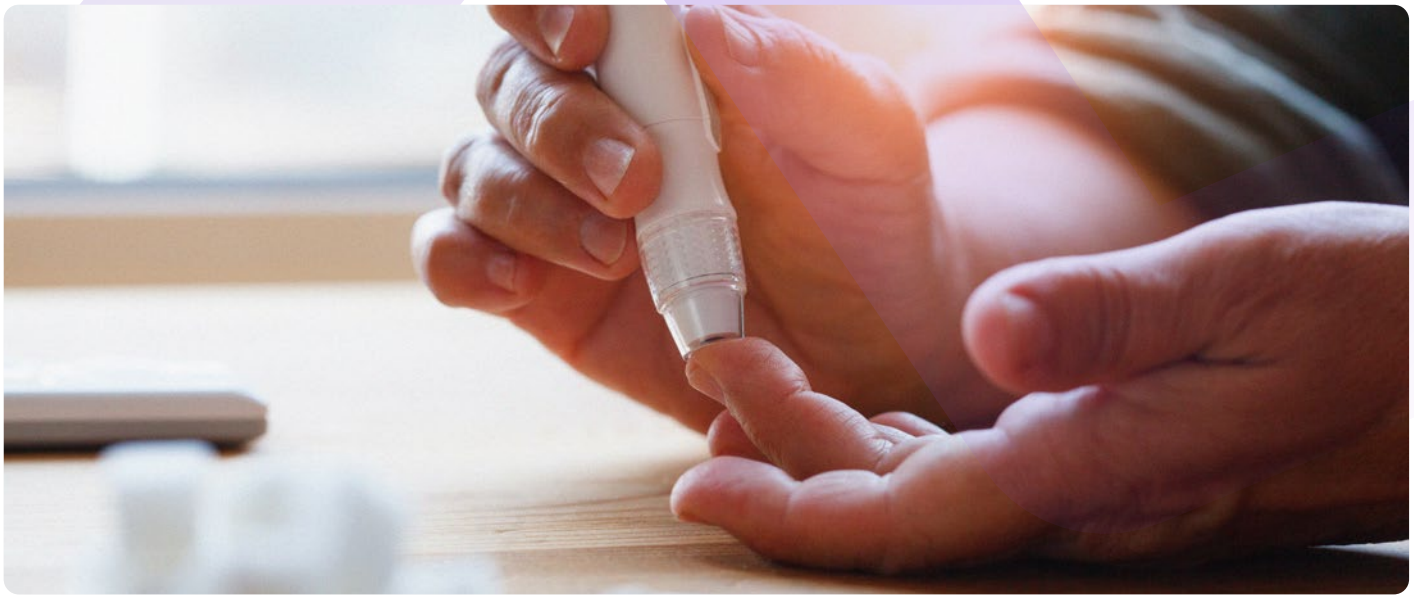


Real-World Analysis Confirms Tirzepatide's Safe Profile for Diabetes and Obesity Treatment

A LARGE-SCALE analysis of real-world data from the FDA Adverse Event Reporting System (FAERS) confirms a reassuring safety profile for tirzepatide (TZP), a new medication used for Type 2 diabetes and obesity.

The research examined 7,460 reports, referring to 286 adverse events related to gastrointestinal, pancreatic, biliary, eye, and thyroid issues

The study, presented at EASD 2024, found that TZP had similar gastrointestinal tolerability compared to other glucagon-like peptide-1 receptor agonists (GLP-1RA), without an increased risk of serious complications such as diabetic retinopathy, pancreato-biliary disorders, or medullary thyroid cancer.

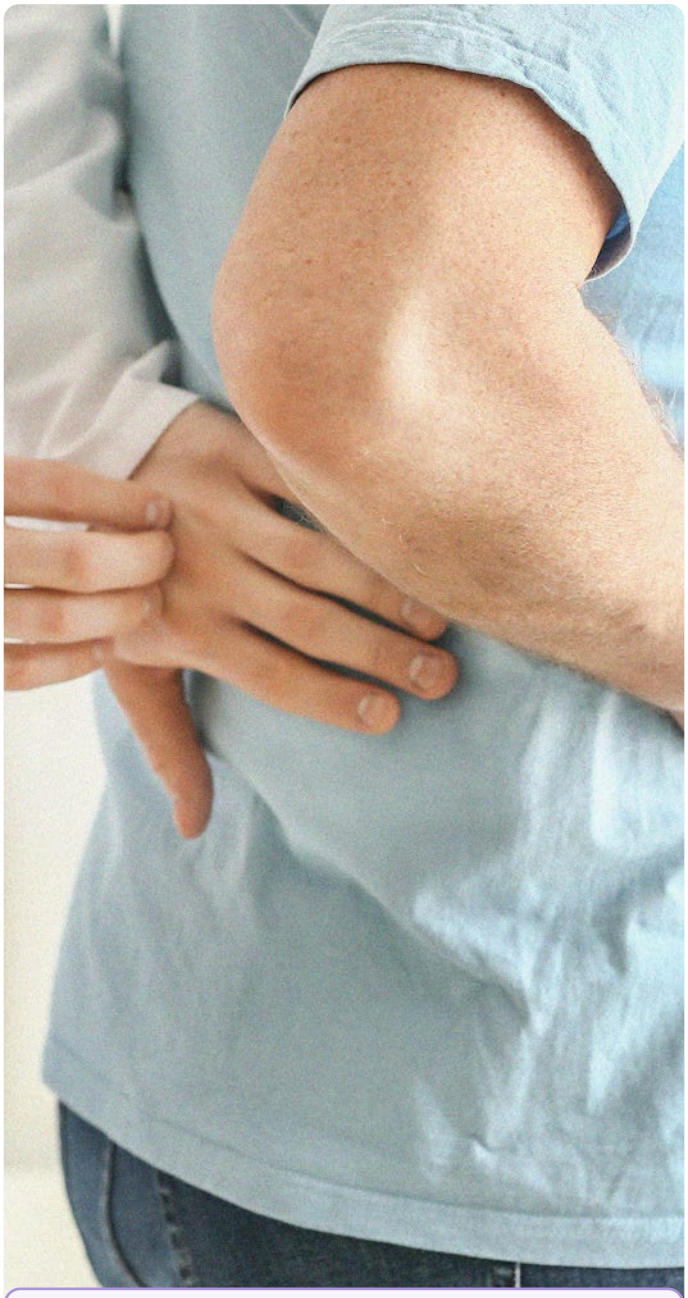
The research examined 7,460 reports, referring to 286 adverse events related to gastrointestinal, pancreatic, biliary, eye, and thyroid issues. TZP showed a higher risk of some gastrointestinal side effects, including nausea, dyspepsia (indigestion), and constipation, compared to insulin and SGLT-2 inhibitors, but these risks were similar to those seen with GLP-1RAs. Notably, eructation was reported 30 times more frequently with TZP than with other drugs. However, TZP did not show a disproportionate increase in the risk of pancreatitis or gallbladder-related conditions compared to other medications in the analysis.

Additionally, reports of diabetic retinopathy (based on 12 diabetic retinopathy events) were over three times more likely with TZP compared to all other drugs. However, TZP was associated with a similar risk of medullary thyroid cancer as other GLP-1RAs and SGLT-2 inhibitors, and a greater risk compared to insulin. Importantly, TZP did not show a significantly higher risk of gallbladder issues except for biliary colic, which was consistent with other GLP-1RAs.

The lead author of the study highlighted that, while the results are promising, the study's observational nature and the limited time frame of TZP's real-world use suggest caution when interpreting the findings. Despite these limitations, the research underscores TZP's potential as a safe and effective treatment for managing blood sugar levels and promoting weight loss in patients with Type 2 diabetes and obesity.

Semaglutide May Reduce Heart Risks in People with Impaired Kidney Function

A NEW study presented at EASD 2024 showed results from the SELECT trial, which has revealed that the anti-obesity drug semaglutide effectively reduces the risk of heart attacks, strokes, and other major cardiovascular events in people with impaired kidney function.



Over the course of more than 3 years, participants treated with semaglutide experienced a 20% reduction in MACE

The SELECT trial involved over 17,000 adults with obesity or overweight who did not have diabetes but had established cardiovascular disease. Results showed that over the course of more than 3 years, participants treated with semaglutide experienced a 20% reduction in major adverse cardiovascular events (MACE), which include heart attacks, strokes, and cardiovascular deaths, compared to those on a placebo. Importantly, the drug was equally effective in participants with impaired kidney function, who saw a 31% reduction in MACE and a 33% lower risk of MACE or death from any cause compared to those taking a placebo.

In addition to its cardiovascular benefits, semaglutide contributed to a significant average weight loss of 9.4% of body weight over the study period. The drug, a GLP-1 receptor agonist, works by mimicking incretin hormones in the body, which help regulate blood sugar levels and reduce appetite, leading to lower calorie intake and weight loss.

The analysis also examined kidney function markers, such as estimated glomerular filtration rate and urinary albumin-to-creatinine ratio, to further assess semaglutide's impact. The drug showed robust cardiovascular protection in participants with impaired kidney function, measured by an estimated glomerular filtration rate below 60 mL/min/1.73m^2. Similarly, those with higher levels of albumin in their urine experienced significant reductions in cardiovascular risk with semaglutide.

These findings suggest that semaglutide, a drug that is traditionally prescribed for Type 2 diabetes and weight loss, may also play a key role in managing cardiovascular health in people with obesity, particularly those with compromised kidney function. While the results are promising, the lead study authors caution that further research is needed to confirm its effectiveness in patients with severe kidney failure.

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Semaglutide and Tirzepatide Aid Weight Loss in Type 1 Diabetes

NEW research presented at EASD 2024 has found that the drugs semaglutide and tirzepatide can significantly improve blood sugar control and lead to substantial weight loss in individuals with Type 1 diabetes (T1D) who are overweight or obese. The findings suggest that these medications, typically prescribed for Type 2 diabetes and weight loss, could be a valuable addition to insulin therapy in managing T1D.

The study was led by researchers from the University of Colorado Anschutz Medical Campus, USA, and reviewed the medical records of 100 adults with T1D, 50 treated with semaglutide and 50 with tirzepatide. Results showed that both drugs were found to cause significant weight loss compared to a control group of patients with T1D who were not on weight-loss medications.

Participants on semaglutide lost an average of 9.1% of their body weight over 12 months, equating to about 19.2 lbs (8.7 kg). In comparison, those on tirzepatide saw an average weight loss of 21.4%, or 49.4 lbs (22.4 kg), more than double the weight loss achieved with semaglutide. Almost all participants using the drugs (77% on semaglutide, 93% on tirzepatide) lost at least 5% of their body weight, with many losing more than 10%.

Both drugs also improved blood sugar control in patients, regardless of whether they used insulin pumps or injections. Notably, patients on tirzepatide were able to reduce their daily insulin dose by an average of 18%, suggesting a decrease in insulin resistance, which is a challenge for overweight and obese individuals with T1D.

The findings of the study are particularly relevant as more patients with T1D are living with obesity, which complicates blood sugar management and increases the risk of complications like heart disease. The weight loss and improved glycaemic control offered by semaglutide and tirzepatide could help reduce these risks.

While the results are promising, the researchers emphasised the need for larger trials to further evaluate the safety and effectiveness of these drugs in patients with T1D. Nonetheless, the study suggests that semaglutide and tirzepatide could become valuable tools in managing T1D, particularly for those struggling with obesity and insulin resistance.

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Fear of Hypoglycaemia Hinders Exercise in People with Type 1 Diabetes

FEAR of hypoglycaemia (FOH) remains a significant barrier to regular physical activity for people with Type 1 diabetes (T1D), despite widespread use of advanced glucose-monitoring technologies, according to research presented at EASD 2024.

Physical activity is known to offer numerous health benefits for people with T1D, including better blood glucose control and overall fitness. However, many with the condition fail to meet recommended activity levels. To examine barriers to exercise in T1D, the study recruited 463 adults with T1D through the National Health Service (NHS) Research Scotland Diabetes Network and via social media to complete an anonymous 61-point online questionnaire. The reported median age of respondents was 45–54 years, median disease duration 21–25 years, and median HbA1c 50–55 mmol/mol.

Participants were asked to rate on a 7-point Likert scale (from 1, "extremely unlikely" to 7, "extremely likely") the likelihood that each of 13 factors would prevent them from exercising regularly in the next 6 months. Factors included loss of control over diabetes, FOH, the fear of being tired, the fear of getting hurt, a low fitness level, and the lack of social support.

The study showed that the overall score for barriers to exercise was relatively low, with a mean of 2.72 out of 7. However, FOH scored significantly higher at 3.60, marking it as the most prominent concern for those with T1D.

In addition, the study revealed that people who discussed exercise during their diabetes clinic visits were less likely to experience FOH (P=0.002). Furthermore, better knowledge of insulin and carbohydrate adjustments before and after exercise was associated with lower FOH (P<0.001). Exercise confidence emerged as the strongest predictor for reducing perceived barriers, accounting for 48.3% of the variance in scores.

The team found that 78.8% of participants were using continuous or flash glucose monitoring, 63.7% were using multiple daily injections, and 36.3% were relying on continuous subcutaneous insulin infusion, emphasising that technological advances alone are not enough to overcome FOH. The researchers concluded that improved education and more frequent discussions about exercise in clinical settings could help alleviate patients' fears and encourage greater physical activity.

Overall, this study highlights the need for healthcare providers to focus on empowering people with T1D through better education and support for integrating exercise into their diabetes management.

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Marathon Runners with Type 1 Diabetes Aided with Hybrid Insulin Technology

A SERIES of case reports, presented at EASD 2024 in Madrid, showcased how hybrid closed-loop insulin technology enabled three adults with Type 1 diabetes (T1D) to run marathons in Tokyo, Santiago, and Paris.

The first case report highlighted a 50-year-old man with a history of T1D for 22 years who ran the Tokyo Marathon in 3 hours and 34 minutes

This advanced automated insulin delivery (AID) system uses an algorithm integrated with an insulin pump to adjust insulin doses every 5 minutes based on real-time glucose readings, significantly improving blood sugar management during physical activity.

For patients with T1D, managing blood sugar levels during aerobic exercise, such as marathon running, can present a significant challenge. Traditional insulin delivery methods often struggle to maintain optimal glucose levels during strenuous exercise; however, this new hybrid closed-loop system allows for more precise control by delivering both basal and correction bolus insulin automatically. It also enables patients to set temporary glucose targets to reduce the risk of hypoglycaemia during exercise.

The first case report highlighted a 50-year-old man with a history of T1D for 22 years who ran the Tokyo Marathon in 3 hours and 34 minutes. He maintained excellent glycaemic control throughout the race, spending 96% of the time within the target glucose range and achieving an average blood glucose level of 107 mg/dl. Adjustments to his insulin doses before the race, along with carbohydrate consumption via glucose gels, helped maintain his blood sugar within this desired range.

A second report described a 40-year-old man with T1D for 4 years who completed the Santiago Marathon in under 5 hours. He also demonstrated effective blood sugar management, with 100% of the race spent within the target range, aided by careful pre-race insulin adjustments and carbohydrate intake.

The final case detailed a 34-year-old woman with T1D for 27 years who completed the Paris Marathon in under 4 hours. However, her glucose levels remained elevated throughout the race, thought to be due to an overconsumption of carbohydrates and a lack of autocorrection boluses.

These case reports highlight the potential of automated insulin delivery systems to help individuals with T1D lead active lives, even during intense physical activities like marathon running. However, they also emphasise the need for personalised approaches and proper education to optimise glucose control.