RSSDI

Indian Diabetes

EDUCATOR JOURNAL

Theme of the Month

Summertime and Diabetes Care

To keep Members of Diabetes Care team abreast about
DSME/DSMS - (Diabetes Self management Education/Support) Concepts

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*DSME: Diabetes Self-Management Education, DSMS: Diabetes Self-Management Support

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To keep the members of diabetes care team abreast with DSME and DSMS concepts

FOREWORD

Research Society for the Study of Diabetes in India (RSSDI) founded by Prof. MMS Ahuja in the year 1972 is the biggest scientific association of healthcare professionals involved in promoting diabetes education and research in India. RSSDI is happy to collaborate with USV to support their endeavour to make India the 'Diabetes care capital of the world'. Through this collaboration, RSSDI would like to strengthen the cadre of diabetes educators by empowering them with recent updates in diabetes management helping bridge the gap between the physician and the patient. Today, the rule of 50% is prevailing in terms of awareness, detection, treatment and control in T2DM. Our aspiration is to achieve 90-90-90-90 i.e.90% of people with diabetes should be made aware, 90% should be detected, 90% of those detected should be treated, and 90% of those treated should reach their goals.

Indian Diabetes Educator Journal (IDEJ) is the first of its kind in India, and the longest running monthly diabetes educator journal since April 2015 and continues its endeavour to spread awareness, knowledge and enable healthcare teams to manage individuals with diabetes and empower them for self-care. RSSDI IDEJ will continue to keep the members of diabetes care team abreast with concepts of Diabetes Self-Management Education/Support (DSME/S) with a reach of 44000 doctors and diabetes educators digitally.

As temperatures rise, so do the challenges of managing diabetes during the summer months. This edition of IDEJ focuses on "Summertime and Diabetes Care" addressing the unique impact of heat, high temperatures, and related conditions such as dehydration on blood glucose levels. We explore essential strategies for preventing complications, staying hydrated, making necessary adjustments, and maintaining an active lifestyle while ensuring safe diabetes management in warmer climates. Our goal is to equip diabetes educators with practical insights to help individuals with diabetes navigate summer with confidence and well-being. We hope this issue serves as a valuable resource for delivering effective, season-specific diabetes care.

We sincerely thank our contributors for making this issue delightful reading for our readers. We dedicate this journal to all the healthcare professionals who are working relentlessly towards making "India–The Diabetes Care Capital of the World."

Sincere Regards,

Dr. Sanjay Agarwal
RSSDI Secretary

*DSME: Diabetes Self-Management Education, DSMS: Diabetes Self-Management Support

Expert Contributors
of the month

Dr. Sushil Jindal

MD, DM (Endocrinology)

Professor and Head, Dept. of Endocrinology People's College of Medical Sciences, Bhopal

Article: Diabetes and Heat: Navigating the Risks of Hot Weather

Dr. Dinesh Kumar

MBBS, MD (KGMC and LKO)

Consulting Physician, Diabetes and Heart Specialist, Harsha Clinic, Lucknow

Article: Effect of Heat on Glucose Regulation

Dr. Bharat Gupta

MBBS, MD (Medicine), FICP, FACP, FIACM, FIAMS, FISH, FDI, FUPDA, Diploma in Clinical Endocrinology and Diabetes (RCP)

Consultant Physician, Kalyan Health Care, Mathura, UP

Article: The Impact of Temperature on Insulin Absorption

Dr. Alpana Sowani

MBBS, D. Diabetology

Consultant Physician and Diabetes Specialist, Diabetes Speciality Centre, Mumbai

Article: Beware of Heat Exhaustion and Heat Stroke: Know the Symptoms

Dr. V. Mohan and Team

MD, FRCP (Lon, Edin, Glasg and Ire), PhD, DSc, DSc (Hon. Causa), FNASc, FASc, FNA, FACE, FACP, FTWAS, MACP, FRSE

Founder, Chairman and Consultant, Dr. Mohan's Diabetes Specialities Centre and Madras Diabetes Research Foundation, Chennai

Research Highlights: Expert Insights: Interview with Dr. Mohan and his team

Dr. Ajay B. Shah

MD (Medicine)

Consultant Diabetologist, Cardiologist and Physician, Shraddha Medicare Centre, Ahmedabad

Article: Simplifying Glycemic Control Test: Know Your Targets

Expert Contributors
of the month

Dr. Soumya Sengupta

MBBS, DPH

Consultant Physician and Director,
Dr. Soumya Sengupta`s Diabetic Clinic, Jharkhand

Article: Summer Tips for People with Diabetes

Dr. Hardik Suthar

MD (Medicine)

Consultant Cardiologist and Diabetologist,
Siddhivinayak Hospital, Modasa

Article: Heat and Diabetes Technology: Understanding the Impact

Dr. Prashant Dixit

MBBS, MD, PGCDM, CCEBDM, PGCAT, CCCSICP, EPGCD

Sr. Consultant Diabetologist, DNA Sugar Clinic, New Delhi

Article: Diabetes Educator's Toolkit
Skill of the Month: Non-verbal Communication

Dr. Harsha Pamnani

MBBS, MD Medicine (Gold Medalist), DNB Endocrinology

Consulting Endocrinologist,
Siddhanta Red Cross Hospital, Bhopal

Article: Frequently Asked Questions on Summertime and Diabetes Care

To get featured in the Indian Diabetes Educator Journal you can connect with us on the below mail ID for further communication: info@nurturehealthsolutions.com

RSSDI Indian Diabetes
EDUCATOR JOURNAL

Issue No. 121, April 2025

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Cover Story: Diabetes and Heat: Navigating the Risks of Hot Weather

Dr. Sushil Jindal

MD, DM (Endocrinology)

Professor and Head, Dept. of Endocrinology
People's College of Medical Sciences, Bhopal

People with diabetes are more susceptible than those without diabetes to heat-related illnesses and death during heat waves.

Altered responses to heat stress in people with diabetes: People with type 1 and type 2 diabetes have impaired vasodilation and sweating, making them more vulnerable to heat. Type 1 diabetes is associated with early skin blood flow impairment and anhidrosis of the lower body. In type 2 diabetes, poor glycemic control, peripheral neuropathy, and autonomic dysfunction contribute to impaired heat response. Comorbidities and medications further impact heat tolerance:

- Cardiovascular disease: Higher risk of heat-related events, worsened by chronic kidney disease.
- Diuretics: Increase dehydration risk, especially with angiotensin-converting enzyme (ACE) or angiotensin II receptor blockers (ARB).
- Beta blockers: Impair heat dissipation, raising the risk of heart attacks.
- Anticholinergic and antidepressant drugs: Disrupt thermoregulation, increasing heat-related morbidity.

As temperatures rise, so do the challenges for individuals managing diabetes. The summer season presents unique risks, from dehydration and fluctuating glucose levels to insulin instability and technology malfunctions. This issue explores how to safeguard diabetes while enjoying the sunny season.

Managing heat-related health risks: Exposure to extreme heat can lead to dehydration, heat exhaustion, and heat stroke. Recognizing early symptoms such as dizziness, excessive thirst, confusion, and high body temperature can be lifesaving. Prevention strategies include staying hydrated, avoiding peak sun hours, and seeking shade whenever possible.

The science behind heat and glucose regulation: Temperature fluctuations affect how the body metabolizes glucose and responds to insulin. High temperatures trigger counter-regulatory hormones, leading to increased insulin resistance in some cases while accelerating insulin absorption in others. This interplay can cause unpredictable glucose fluctuations, making frequent monitoring essential.

Diabetes technology and the summer heat: Modern diabetes technology has transformed diabetes care, but it is not immune to environmental challenges. The functions of glucometers, insulin pumps, and insulin pens can be affected by extreme temperatures. From potential inaccuracies in glucose readings to insulin degradation, managing device storage and function is crucial for summer safety.

Protecting insulin in hot weather: With insulin being highly temperature-sensitive, summer requires special attention to storage. Insulin absorption rates increase significantly in warm conditions, raising the risk of hypoglycemia. Strategies such as using cooling pouches, avoiding direct sunlight exposure, and closely monitoring blood glucose levels can help maintain stability.

Staying active and safe during summer: Physical activity is a cornerstone of diabetes management, but summer heat necessitates modifications. It is recommended to exercise during cooler parts of the day, stay hydrated, and choose appropriate footwear to prevent foot injuries. Special care is required during traveling with respect to foot care and exercise safety in hot climates.

Nutrition and hydration in hot weather: A well-balanced diet plays a vital role in maintaining stable glucose levels, especially during summer. Consuming water-rich foods such as cucumbers, watermelon, muskmelon, and leafy greens can help prevent dehydration. Avoiding processed foods, sugary drinks, and high-sodium snacks can further support overall health. Opting for sugar-free electrolyte drinks, infused water, lemon water, and buttermilk can provide essential hydration without spiking blood sugar levels.

Traveling with diabetes in the summer: Summer vacations and travel plans can bring additional challenges for diabetes management. Ensuring proper insulin storage, packing extra medical supplies, and keeping emergency snacks on hand are essential steps for a stress-free journey. Checking the weather conditions of the destination and planning meals in advance can further help in managing blood sugar levels effectively.

Enjoying summer with confidence: Despite the challenges posed by high temperatures, proactive planning can ensure a safe and enjoyable summer. By understanding how heat affects diabetes management, staying hydrated, protecting medications and devices, and monitoring glucose levels frequently, individuals with diabetes can embrace the season without compromising their health. This issue serves as a comprehensive guide to thriving during summer while keeping diabetes under control.

Resources:

1. Westphal SA, Childs RD, Seifert KM, *et al.* Managing diabetes in the heat: Potential issues and concerns. *Endocr Pract.* 2010;16(3):506–511. doi:10.4158/EP09344.RA
2. Ratter-Rieck JM, Roden M, Herder C. Diabetes and climate change: Current evidence and implications for people with diabetes, clinicians and policy stakeholders. *Diabetologia.* 2023;66(6):1003-1015. doi:10.1007/s00125-023-05901-y
3. Centers for Disease Control and Prevention (CDC). Managing Diabetes in the Heat. https://www.cdc.gov/diabetes/articles/managing-diabetes-in-the-heat.html. Accessed January 27, 2025.

Effect of Heat on Glucose Regulation

Dr. Dinesh Kumar

MBBS, MD (KGMC and LKO)

Consulting Physician, Diabetes and Heart Specialist, Harsha Clinic, Lucknow

The interaction between heat and glucose metabolism is particularly significant for individuals with diabetes. Extreme temperatures can exacerbate the challenges of managing this condition, affecting insulin sensitivity and overall glycemic control.

Effects of heat on glucose metabolism

Short-term exposure to elevated temperatures increases levels of counter-regulatory hormones (catecholamines, growth hormone, cortisol, and glucagon). Mild hyperthermia (1.2 °C rise in body temperature) does not significantly alter glucose levels due to compensatory increases in insulin. However, more significant hyperthermia (2.8 °C increase in a sauna study) was associated with higher fasting and post-load glucose levels, along with a decreased insulin response.

In individuals with type 1 diabetes, exercise at warmer temperatures (30 °C) has been shown to result in greater norepinephrine and cortisol responses compared to cooler conditions (10 °C). Despite this, glucose levels were found to be lower at higher temperatures, possibly due to enhanced insulin absorption.

Therefore, in people with type 1 diabetes, especially those engaging in exercise at higher temperatures, studies indicate a higher risk of hypoglycemia. This is likely due to enhanced insulin absorption in warm conditions, combined with increased energy expenditure during exercise.

Overall, heat exposure leads to complex hormonal responses that may influence glucose regulation, with mild hyperthermia being well-compensated, while more significant increases in body temperature may contribute to elevated glucose levels.

In individuals with type 2 diabetes not managed with insulin, the effects of heat exposure remain unclear. However, given that counter-regulatory hormones tend to rise with hyperthermia, this could lead to increased glucose levels due to insulin resistance and impaired glucose utilization.

Increased need for monitoring

Extreme temperatures necessitate more frequent blood glucose monitoring. Patients may need to adjust their insulin doses and dietary intake based on their activity levels and hydration status during hot weather.

Health equity considerations

The effects of extreme heat are disproportionately felt by lower-income individuals with diabetes, who may lack access to cooling systems or adequate healthcare resources. Research indicates that these populations experience higher rates of adverse health outcomes during temperature extremes due to socioeconomic factors.

The relationship between heat and glucose metabolism in individuals with diabetes is complex and multifaceted. While moderate heat exposure may offer some benefits for insulin sensitivity and glucose control, extreme temperatures pose significant risks that require careful management.

Resources:

1. Westphal SA, Childs RD, Seifert KM, *et al.* Managing diabetes in the heat: Potential issues and concerns. *Endocr Pract.* 2010;16(3):506–511. doi:10.4158/EP09344.RA
2. Tedman N. Extreme heat and cold put people with type 2 diabetes at risk for dangerous health conditions. Penn LDI. January 3, 2023. Available at: https://ldi.upenn.edu/our-work/research-updates/extreme-heat-and-cold-put-people-with-type-2-diabetes-at-risk-for-dangerous-health-conditions/
3. Sebők J, Édel Z, Váncsa S, *et al.* Heat therapy shows benefit in patients with type 2 diabetes mellitus: A systematic review and meta-analysis. *Int J Hyperthermia.* 2021;38(1):1650–1659. doi:10.1080/02656736.2021.2003445

The Impact of Temperature on Insulin Absorption

Dr. Bharat Gupta

MBBS, MD (Medicine), FICP, FACP, FIACM, FIAMS, FISH, FDI, FUPDA, Diploma in Clinical Endocrinology and Diabetes (RCP)
Consultant Physician, Kalyan Health Care, Mathura, UP

Insulin absorption is significantly influenced by temperature, both ambient and local. Research indicates that higher temperatures can enhance the rate at which insulin is absorbed into the bloodstream, which has important implications for diabetes management.

Effects of ambient temperature

1. **Increased absorption rates:** Studies have shown that a rise in ambient temperature leads to a marked increase in insulin absorption. One study reported that insulin absorption at 35 °C was 50%–60% higher compared to 20 °C in insulin-dependent diabetes individuals, with a significant reduction in plasma glucose levels at the higher temperature.

2. **Exercise and temperature interaction:** The combined effect of warm temperatures and physical exercise further accelerates insulin absorption. In a study involving type 1 diabetes individuals, warm conditions (30 °C) resulted in three to five-fold higher insulin absorption compared to cooler conditions (10 °C), regardless of exercise. This suggests that both ambient temperature and physical activity can synergistically enhance insulin efficacy.

3. **Local heating effects:** Local warming of the injection site, such as using a sauna or applying heat packs, has also been shown to increase insulin absorption rates.

Physiological mechanisms: The physiological basis for these observations includes:

- **Vasodilation:** Higher temperatures cause blood vessels to dilate, enhancing blood flow to the injection site and facilitating quicker absorption of insulin.
- **Increased metabolic activity:** Elevated temperatures may stimulate metabolic processes that promote faster uptake of insulin by muscle and fat tissues.

Given the impact of temperature on insulin absorption, the following considerations become important:

- **Monitoring blood glucose:** Individuals with diabetes should closely monitor their blood glucose levels during periods of high ambient temperatures or after exercising, as the enhanced absorption can lead to lower blood glucose levels than expected.
- **Adjustment of dosages:** Adjustments in insulin dosages may be necessary during warmer weather or after engaging in physical activity to prevent hypoglycemia.

Thus, evidence underscores the importance of considering environmental factors such as temperature in diabetes management. Understanding how temperature affects insulin absorption can help individuals with diabetes optimize their treatment regimens to maintain optimal glucose control.

Key highlights

- Higher temperatures significantly enhance insulin absorption, with rates increasing by up to 60% at 35 °C compared to 20 °C.
- Warm conditions, exercise, and local heating of injection sites further accelerate absorption due to vasodilation and increased blood flow.
- These effects emphasize the need for careful blood glucose monitoring and potential insulin dose adjustments in warmer weather and/or after physical activity to prevent hypoglycemia and maintain glycemic control.

Resources:

1. Pitt JP, McCarthy OM, Hoeg-Jensen T, Wellman BM, Bracken RM. Factors influencing insulin absorption around exercise in type 1 diabetes. *Front Endocrinol.* 2020;11:573275. doi:10.3389/fendo.2020.573275
2. Westphal S, Childs R, Seifert K, *et al.* Managing diabetes in the heat: Potential issues and concerns. *Endocr Pract.* 2010;16(3):506–511. doi:10.4158/ep09344.ra
3. Rönnemaa T, Koivisto VA. Combined effect of exercise and ambient temperature on insulin absorption and postprandial glycemia in type I patients. *Diabetes Care.* 1988;11(10):769–773. doi:10.2337/diacare.11.10.769
4. Koivisto VA, Fortney S, Hendler R, Felig P. A rise in ambient temperature augments insulin absorption in diabetic patients. *Metabolism.* 1981;30(4):402–405. doi:10.1016/0026-0495(81)90122-0
5. Piedmont Healthcare. Change in temperature can affect blood sugar levels. *Piedmont Healthcare*. https://www.piedmont.org/living-real-change/change-in-temperature-can-affect-blood-sugar-levels
6. Yale Medicine. Insulin stimulates production of body heat, new study finds. *Yale Medicine.* Published February 14, 2023. https://medicine.yale.edu/news-article/insulin-stimulates-production-of-body-heat-new-study-finds/

Beware of Heat Exhaustion and Heat Stroke: Know the Symptoms

Dr. Alpana Sowani

MBBS, D. Diabetology

Consultant Physician and Diabetes Specialist,
Diabetes Speciality Centre, Mumbai

People with diabetes are more vulnerable to extreme heat due to reduced sweating, impaired blood flow, and neuropathy, which affect temperature regulation. Prolonged heat exposure can disrupt the body's ability to maintain its core temperature (98.6 °F/37 °C), increasing the risk of heat exhaustion and heat stroke. Rising temperatures also impact metabolism, causing dehydration, insulin resistance, and glucose fluctuations. Recognizing heat stroke and heat exhaustion—heat-related illnesses range in severity from mild heat exhaustion to life-threatening heat stroke. Recognizing symptoms early can save lives:

Symptoms of heat exhaustion	Symptoms of heat stroke
• Headache, nausea, dizziness, irritability, weakness • Excessive sweating and thirst • Elevated body temperature • Decreased urine output	• Confusion, slurred speech, or altered mental state, seizures • Loss of consciousness (coma) • Hot, dry skin, or heavy sweating • Dangerously high body temperature

Prevention of heat stroke

- Stay hydrated–drink plenty of water especially if involved in physical activity. Avoid caffeinated drinks and alcohol. Drink enough water to maintain urine as straw-colored.
- Wear loose-fit clothes that are light-weight and light-colored in breathable fabrics like cotton/linen.
- Avoid the heat by scheduling outdoor activities in the early morning or evening and staying in cool and shady places. Use sun hats/sunglasses and sunscreen with sun protection factor (SPF) 15 or higher.

Treatment of heat stroke

- Prevention is the best cure, but in case one needs to treat a heat stroke, rapid cooling methods should be employed. e.g., applying wet cloth or towels to the skin then applying ice packs and moving the person to an area with fans and good ventilation.
- At times a cold shower also works well. Continue the above for 20 minutes until the person feels better.
- Check on the person, as appropriate, if additional care is needed. Watch for changes in breathing and responsiveness. If needed, move to a health care facility.

Stay safe–prevention is key: To safeguard against heat-related illnesses, prioritize hydration, limit sun exposure during peak hours, and seek shade or cooling areas when temperatures rise. If symptoms appear, act promptly to cool the body and seek medical help if necessary.

Resources:

1. Meo SA, Meo AS. Climate Change and Diabetes Mellitus - Emerging Global Public Health Crisis: Observational Analysis. *Pak J Med Sci.* 2024;40(4):559-562. doi:10.12669/pjms.40.4.8844
2. Alahmad B, Ali H, Alwadi Y, Al-Hemoud A, Koutrakis P, Al-Mulla F. Combined impact of heat and dust on diabetes hospitalization in Kuwait. *BMJ Open Diabetes Res Care.* 2024;12(4):e004320. Published 2024 Aug 29. doi:10.1136/bmjdrc-2024-004320
3. Centers for Disease Control and Prevention. Heat-related illnesses. National Institute for Occupational Safety and Health (NIOSH). Updated June 19, 2023. Accessed January 30, 2025. https://www.cdc.gov/niosh/heat-stress/about/illnesses.html

In uncontrolled T2DM with A1c >8.5%, **Choose 1st**

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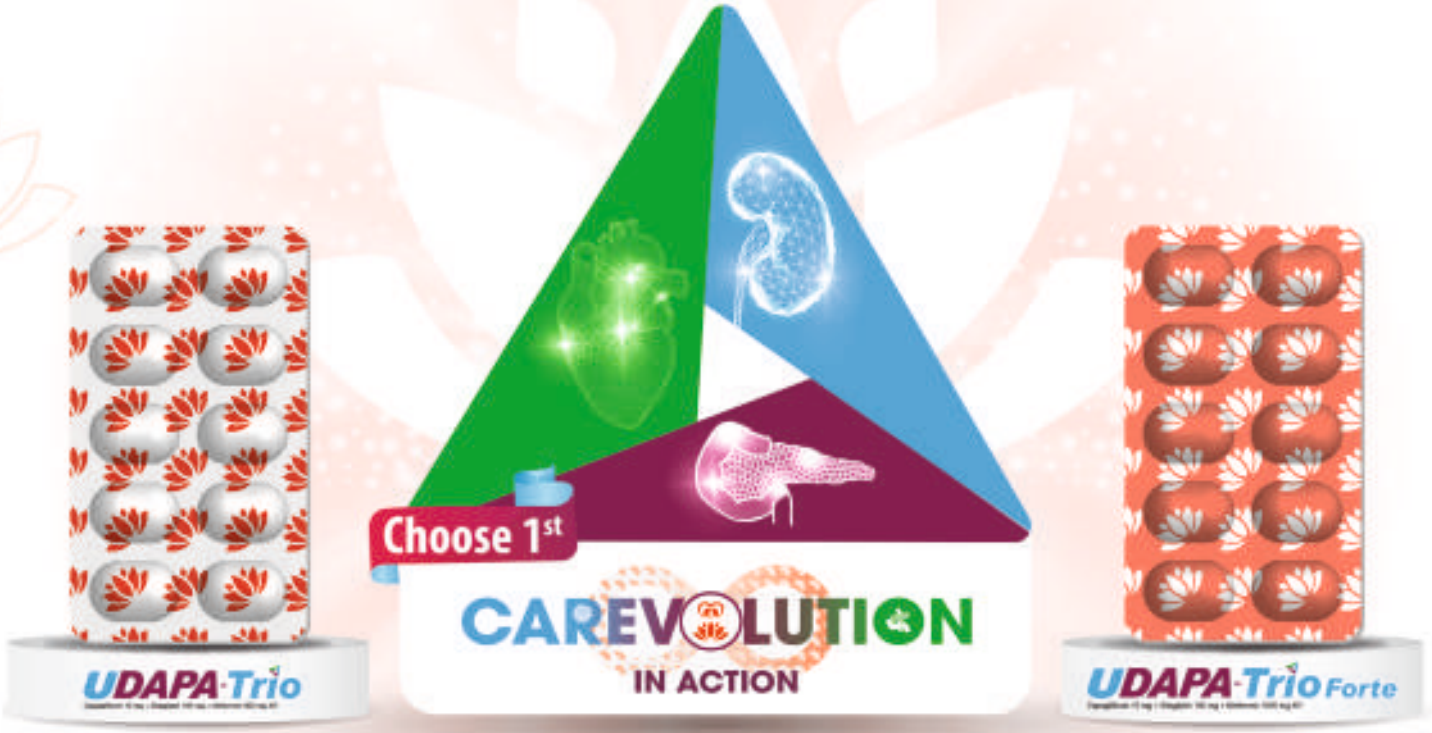

Abridged Prescribing Information

UDAPA-TRIO Forte, UDAPA-TRIO, Dapagliflozin, Sitagliptin & Metformin Hydrochloride Extended Release Tablets

Composition: Dapagliflozin 10 mg, Sitagliptin 100 mg & Metformin Hydrochloride Extended Release 1000 mg tablets Dapagliflozin propanediol monohydrate eq. To Dapagliflozin 10 mg Sitagliptin Phosphate Monohydrate IP Eq. Sitagliptin 100 mg Metformin Hydrochloride IP (as Extended Release) 1000 mg Dapagliflozin10 mg, Sitagliptin 100 mg & Metformin Hydrochloride Extended Release 1000 mg tablets Dapagliflozin propanediol monohydrate eq. To Dapagliflozin 10 mg Sitagliptin Phosphate Monohydrate IP Eq. Sitagliptin 100 mg Metformin Hydrochloride IP (as Extended Release) 500 mg **Indication:** It is indicated as an adjunct to diet and exercise to improve Glycemic Control adults with type 2 diabetes mellitus **Recommended Dosage:** As directed by the physician. **Method of Administration:** Oral **Adverse Reactions:** Most common adverse reactions reported are: Dapagliflozin - Female genital mycotic infections, Nasopharyngitis, Urinary tract infections. Sitagliptin - Upper respiratory tract infection, nasopharyngitis and headache. Metformin - Diarrhea, nausea/vomiting, flatulence, asthenia, indigestion, abdominal discomfort, and headache. **Warnings and Precautions:** Dapagliflozin: Volume depletion; Ketoacidosis in patients with Diabetes Mellitus; Urosepsis and Pyelonephritis; Hypoglycemia; Genital mycotic infections Sitagliptin: General: Sitagliptin should not be used in patients with type 1 diabetes or for the treatment of Diabetic Ketoacidosis. Acute pancreatitis: Hypoglycemia is used in combinations when combined with other anti-hyperglycemic medicinal product; Renal impairment: Hypersensitivity reactions including anaphylaxis, angioedema, and exfoliative skin conditions - Steven johnson syndrome; Bullous pemphigoid Metformin Hydrochloride: Lactic acidosis; In case of dehydration (severe diarrhea or vomiting, fever or reduced fluid intake), metformin should be temporarily discontinued and contact with a healthcare professional is recommended. **Contraindications:** Hypersensitivity to the active substance of Dapagliflozin, Sitagliptin & Metformin or to any of the excipients listed. Any type of acute metabolic acidosis (such as lactic acidosis, diabetic ketoacidosis). Diabetic pre-coma; Severe renal failure (eGFR < 30ml/min); Acute conditions with the potential to alter renal function such as: Dehydration, Severe infection, Shock; Acute or chronic disease which may cause tissue hypoxia such as: Cardiac or respiratory failure, Recent myocardial infarction, Shock, Renal Impairment, Acute intoxication, Alcoholism. **Use in special population:** Pregnant women: Due to lack of human data, drugs should not be used during pregnancy. Lactating women: It should not be used during breastfeeding. Pediatric patients: The safety and efficacy of drugs has not yet been established. No data is available. Geriatric Patients: In patients >65 years, it should be used with caution as age increases. For Additional Information/full prescribing information, please write to us: USV Private Limited, Arvind Vithal Gandhi Chowk, B.S.D. Marg, Govandi, Mumbai - 400088 Last updated on 02/04/2024.

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Arvind Vithal Gandhi Chowk, B.S.D. Marg, Govandi East, Mumbai-400088

Tel.: 91-22-2556 4048 Fax: 91-22-2558 4025 www.usvindia.com

Optimizing Diabetes Management in CKD: A Collaborative Approach
A Doctor's Experience on the MyCare Support Program for People with Diabetes

Dr. A. J. Asirvatham

MD (General Medicine), D. Diabetology, FRCP (Glasglow)

Professor of Diabetology, Madurai Medical College
Diabetologist, Arthur Asirvatham Hospital, Madurai

Here's what Dr. A. J. Asirvatham has to say:

A 62-year-old lady with a 15-year history of type 2 diabetes mellitus (T2DM) was receiving treatment for stage III chronic kidney disease (CKD), having an estimated glomerular filtration rate (eGFR) of 35 mL/min/1.73 m². Although she was on a basal-bolus insulin regimen, her glycosylated hemoglobin (HbA1c) values fluctuated between 7.5% and 8.7%. The inconsistencies were due to false-positive glucose readings, leading to inappropriate insulin dose adjustments and an increased risk of hypoglycemia. Hence, her insulin regimen was reassessed, and safer substitutes for drugs that affected her kidneys or her blood glucose levels were advised. For more precise monitoring of insulin changes, a continuous glucose monitoring (CGM) device was introduced.

Recognizing the need for structured education, the patient was referred to MyCare Diabetes Educator (MDE) Mr. Syed Abdul Kader. MDE Abdul played a pivotal role in optimizing her diabetes self-management through targeted interventions. To prevent under- or overdosing, he taught her carbohydrate counting and to match bolus insulin doses accordingly. Additionally, she received instruction on how to identify the early signs of hypoglycemia and was given immediate response strategies. Because of her elevated risk of hypoglycemia from CKD and insulin use, she was advised to always carry a glucose source.

MDE Abdul assessed the accuracy of her glucometer. Additionally, he taught her how to effectively utilize the CGM device, interpret readings, and modify insulin as necessary. This was followed by regular follow-ups to monitor glucose levels, carbohydrate counting logs, and reviewing insulin dosages. Ongoing education ensured that she could independently manage hypoglycemia episodes effectively.

Optimizing her insulin therapy, educating her on carbohydrate counting, and a gradual and empathetic approach helped reduce the impact of false-positive glucose readings, stabilized her HbA1c, and improved her overall diabetes management despite the complications of CKD.

Mr. Syed Abdul Kader

NDEP and T1DE Certified Diabetes Educator

Here's what MDE Abdul has to say:

This case underscores the critical role of interdisciplinary collaboration in diabetes management, especially in patients with CKD. By integrating CGM, adjusting treatment strategies, and prioritizing patient education, successfully empowered the patient to achieve better glycemic control and a safer, more sustainable diabetes management plan.

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*PWD: People with Diabetes

Contact for more information
Nikita Thawarkar | 7304930643 | nikita.thawarkar@usv.in

In T2DM uncontrolled on monotherapies

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UDAPA-S

Dapagliflozin 10 mg + Sitagliptin 100 mg Tablets

Ref.: L Ravikumar et al.Cardiology and Cardiovascular Medicine. 2023; 7: 141-144. |

Abridged Prescribing Information

Composition: Each Film Coated Tablet Contains: Dapagliflozin Propanediol Monohydrate eq. to Dapagliflozin (10 mg) + Sitagliptin Phosphate Monohydrate IP eq. to Sitagliptin (100 mg). **Indications:** For the treatment of type 2 diabetes mellitus inadequately controlled on Metformin monotherapy. Recommended Dosage: As directed by the physician. **Method of Administration:** Oral. **Adverse Reactions:** Female genital mycotic infections, nasopharyngitis, and urinary tract infections are most common adverse reactions associated with dapagliflozin. While, upper respiratory tract infection, nasopharyngitis, and headache are most common adverse reactions associated with sitagliptin. **Warnings and Precautions: Risk of Volume Depletion in Elderly** - Before initiating Dapagliflozin and Sitagliptin, assess volume status and renal function in the elderly, patients with renal impairment or low systolic blood pressure, and in patients on diuretics. Monitor for signs and symptoms during therapy. **Ketoacidosis in Patients with Diabetes Mellitus** - Assess patients who present with signs and symptoms of metabolic acidosis for ketoacidosis regardless of blood glucose level. If suspected, discontinue UDAPA™-S, evaluate and treat promptly. Before initiating UDAPA™-S, consider risk factors for ketoacidosis. Patients on UDAPA™-S may require monitoring and temporary discontinuation of therapy in clinical situations known to predispose to ketoacidosis. **Urosepsis and Pyelonephritis** - Evaluate for signs and symptoms of urinary tract infections and treat promptly, if indicated. Hypoglycemia - Consider a lower dose of insulin or the insulin secretagogue to reduce the risk of hypoglycemia when used in combination with Dapagliflozin and Sitagliptin. **Necrotizing Fasciitis of the Perineum** - Serious, life-threatening cases have occurred in patients with diabetes, both females and males. Assess patients presenting with pain or tenderness, erythema, or swelling in the genital or perianal area, along with fever or malaise. If suspected, institute prompt treatment. **Genital Mycotic Infections** - Monitor and treat, if indicated. **Contraindications:** Patients with a history of hypersensitivity reaction to the active substance or to any of the excipients. In patients with varying degrees of renal impairment, adjusting the dosage is advised based on the severity of the condition. Prohibited medications include strong CYP2C8 inhibitors/ inducers, drugs increasing/decreasing hypoglycemic action, drugs known to cause QT prolongation, or other oral hypoglycemic agents other than study medications.

For Additional Information/full prescribing information, please write to us:
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Updated on 20th March 2024

PV - In case of any adverse events, kindly contact pv@usv.in

USV Private Limited.
Arvind Vithal Gandhi Chowk, BSD Marg, Station Road, Govandi East, Mumbai -400 088. India.

Research Highlights

Dr. V. Mohan and Team

MD, FRCP (Lon, Edin, Glasg and Ire), PhD, DSc, DSc (Hon. Causa), FNASc, FASc, FNA, FACE, FACP, FTWAS, MACP, FRSE

Founder, Chairman and Consultant, Dr. Mohan's Diabetes Specialities Centre and Madras Diabetes Research Foundation, Chennai

Expert Insights: Interview with Dr. Mohan and his team - Ms. Sudha Vasudevan, Dr. R. M. Anjana, Ms. R. Gayathri, Ms. K. Ashwini, and Dr. Shilpa Bhupathiraju on their recent publication.

"Effect of Premeal Pistachio Supplementation on Cardiometabolic Risk Factors Among Asian Indian Adults with Prediabetes: A Randomized Controlled Trial"

1. What inspired you to study pistachio supplementation as an adjunct dietary intervention for cardiometabolic risk factors in Asian Indian adults with prediabetes?

Ans. Series of studies conducted from our center earlier, right from Chennai urban rural epidemiology study (CURES), prospective urban rural study (PURE), and Indian Council of Medical Research-India Diabetes (ICMR-INDIAB) national study had shown the need to reduce the high carbohydrate content in the Indian diets and this reduction in carbohydrate calories has the potential for remission and prevention of diabetes and prediabetes. Currently, the population with prediabetes is higher than the population with diabetes (136 million vs. 101 million) in India warranting an urgent action needed to prevent this proportion from converting to diabetes. It is well known that diabetes occurs in Asian Indians a decade earlier and at a younger productive age of 40 years. Lifestyle factors like healthier dietary strategies could help correct the dietary imbalance to improve the overall quality of Indian diets. Indian diets are high in carbohydrates, lower in protein, healthy fats like monounsaturated fatty acids (MUFA), and dietary fiber. High carbohydrates combined with high glycemic index foods like refined grains (e.g., white rice) could lead to a higher dietary glycemic load (double food faults). Pistachios had been previously studied in those adults with metabolic syndrome in India. Hence, our inspiration is to fill the gap in research to evaluate the effect of pistachio in the prediabetes population.

2. What were the most significant findings of the study?

Ans. The significant findings are reductions in glycosylated hemoglobin (HbA1c) level, serum triglycerides, and abdominal obesity (waist circumference) after 12 weeks of intervention with 60 g/day pistachio when compared to the control group without any nuts in the population with prediabetes.

3. What are the potential mechanisms by which pistachios may assist glucose control and potentially impact cardiometabolic risk factors?

Ans. Our findings are consistent with findings from previous studies that also demonstrated that when nuts are included as part of a carbohydrate-rich meal, the glycemic load of the overall meal is reduced. The reductions in glycemic load are not unexpected as pistachios are low in carbohydrates and high in protein, dietary fiber, and healthy fats (especially MUFA), all of which can blunt the glycemic response after a meal, possibly through delayed gastric emptying. Therefore, it is plausible that a decrease in glycemic load observed in the intervention group eventually translated to a decrease in HbA1c. In addition, pistachios are a good source of protein, and dietary fiber and rich in several polyphenols and magnesium, both of which have demonstrated potential benefits for risk reduction by increasing the antioxidant and anti-inflammatory potential of the diet and by improving insulin resistance.

4. Were there any unexpected findings or trends that emerged during the trial that may need to be further studied?

Ans. Rather than unexpected findings, I would say that this study is the first to study among the prediabetes population in India and evaluated the unique biomarkers specific to pistachio nuts like urinary biomarker N-methyl-trans-4-hydroxy-L-proline (MHP) and the plasma vitamin E tocopherol (a potent antioxidant) that showed significant increase within the intervention group that consumed 60 g/day pistachio for 12 weeks.

5. What do your findings imply for broader diabetes prevention programs and dietary guidelines?

Ans. Our finding clearly indicates the usefulness of nuts isocaloric substitution with high carbohydrate, high dietary glycemic load Indian meals, which could significantly reduce the meal glycemic load and hence post-meal glycemic responses, longer-term glycemic control markers like glycosylated hemoglobin (HbA1c) in the prediabetes population. This reduction in the glycemic markers could help prevent the progression of prediabetes to diabetes. In addition, the introduction of nuts in the diet can correct the dietary imbalance by increasing the protein and healthy fats like MUFA and reducing the carbohydrates and dietary glycemic load. This evidence backs the dietary guidelines to include nuts in the diet for cardiometabolic risk reduction.

6. How much pistachios would you recommend in the diet for individuals from lower socioeconomic strata to ensure both cost-effectiveness and nutritional benefits?

Ans. Nuts in general, are healthier when they are iso-calorically replaced with carbohydrates. Our earlier studies on nuts like cashew nuts and almonds have also shown health benefits. We have tested with a minimum of 30 g of cashew nuts per day to 43 g of almonds per day and this pistachio study with 60 g/day is the uppermost. Currently, the clinical trial with 60 g/day of peanuts is ongoing. Based on our studies, nuts intake of 30 g/day will be good to consider across various socioeconomic groups suiting their affordability.

Resource:

- Ashwini K, Abirami K, Gayathri R, Sasikala S, Sudha V, Shobana S, Jeevan RG, Krishnaswamy K, Deepika V, Rajalakshmi M, Bai R MR, Parkavi K, Padmavathi S, Anjana RM, Unnikrishnan R, Hu FB, Willett WC, Salas-Salvadó J, Bhupathiraju SN, Mohan V. Effect of Premeal Pistachio Supplementation on Cardiometabolic Risk Factors among Asian Indian Adults with Prediabetes: A Randomized Controlled Trial. *J Nutr.* 2025 Jan 31:S0022–3166(24)01231–8. doi: 10.1016/j.tjnut.2024.12.005

Simplifying Glycemic Control Test: Know Your Targets

Dr. Ajay B. Shah

MD (Medicine)

Consultant Diabetologist, Cardiologist and Physician, Shraddha Medicare Centre, Ahmedabad

To ensure glucose control in people with diabetes, the following tests are advised: Fasting blood glucose (FBG), postprandial blood glucose (PPBG), glycosylated hemoglobin (HbA1c), and fructosamine levels.

Test	Description	Recommended targets
FBG	Fasting is referred to as going at least eight hours without eating or drinking anything other than water before taking the test. Typically, this test is carried out before breakfast in the morning.	As per ADA 80-130 mg/dL
PPBG	Postprandial glucose levels are measured usually two hours after a meal to understand the efficiency of medication/insulin and evaluate glucose control.	As per ADA Less than 180 mg/dL
HbA1c	HbA1c indicates the average blood glucose level over the last three months.	As per ADA Less than 7% Liberal targets for small children and elderly individuals
Fructosamine	In situations where HbA1c measurement is unreliable, fructosamine—a marker of the non-enzymatic glycation of circulating proteins such as albumin, globulins, and lipoproteins—has emerged as an alternative. It reflects on glucose control over the last 2–3 weeks.	Normal range 200 to 285 µmol/L

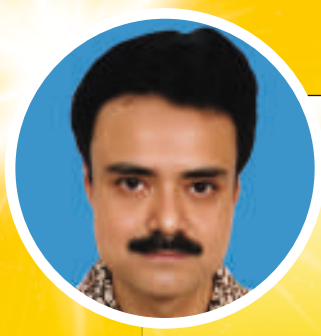
ADA: American Diabetes Association

These targets may be individualized depending on various factors such as age, physical activity levels, incidence of hypoglycemia, hypoglycemia unawareness, presence of comorbidities, etc. One must consult the doctor to seek personalized guidance.

Resources:

1. Check your blood glucose, American Diabetes Association, Available at: https://diabetes.org/living-with-diabetes/treatment-care/checking-your-blood-sugar
2. Gounden V, Ngu M, Anastasopoulou C, *et al.* Fructosamine. [Updated 2023 Aug 14]. In: StatPearls [Internet]. Treasure Island (FL): *StatPearls Publishing*; 2025 Jan. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470185/

Summer Tips for People with Diabetes



Dr. Soumya Sengupta

MBBS, DPH

Consultant Physician and Director,
Dr. Soumya Sengupta`s Diabetic Clinic,
Jharkhand

Hot weather can be challenging for people with diabetes, increasing the risk of dehydration, blood glucose fluctuations, and heat-related illnesses. Follow these key tips to stay safe.

Ensure hydration: One may not feel thirsty, especially in air-conditioned environments, but it is essential to drink enough water to prevent dehydration. Dehydration can increase insulin resistance and make blood glucose control more difficult. Watch for dehydration signs: Dry mouth, dark urine, extreme thirst, dizziness, and high blood glucose levels.

Temperature awareness: Check the heat index (combining temperature and humidity) and avoid outdoor activities above 80 °F, as high humidity prevents sweat evaporation.

Precautions:

- Plan outdoor activities in the morning/evening.
- Use weather apps for real-time updates.
- Monitor blood glucose more frequently in hot weather.

Physical activity and protection:

- Exercise in cooler parts of the day and seek air-conditioned spaces.
- Wear light, breathable clothing, apply sunscreen, and use hats and sunglasses for sun protection.

Medication and equipment care:

- Store insulin under safe temperature conditions; use a cooling pouch if traveling.
- Keep glucose monitors, pumps, and other devices out of direct sunlight and extreme heat.

Emergency preparedness:

- Have an action plan for power outages.
- Keep an emergency kit with medications, hypoglycemia kits, and water.
- Use fans, air conditioning, and blinds to maintain a cool home.

Dietary tips for hot weather:

- Avoid sugary and caffeinated drinks; opt for water, infused water, or sugar-free beverages like lemon water, buttermilk, cold soups, etc.
- Eat water-rich foods like curd, celery, cucumber, watermelon, muskmelon, etc.
- Opt for small, frequent meals with whole grains, lean proteins, and low-glycemic foods.
- Avoid high-sodium and processed foods to prevent dehydration.
- Choose cooling snacks like fresh fruit popsicles, chilled carrot cucumber sticks, or low-fat smoothies.

By staying hydrated, monitoring blood glucose, and making mindful food choices, people with diabetes can safely enjoy summer while minimizing risks.

Resources:

1. Centers for Disease Control and Prevention (CDC). Managing Diabetes in the Heat. https://www.cdc.gov/diabetes/articles/managing-diabetes-in-the-heat.html. Accessed January 27, 2025.
2. National Diabetes Services Scheme (NDSS). Managing Diabetes When It's Hot. https://www.ndss.com.au/news/managing-diabetes-when-its-hot/. Accessed January 27, 2025.

Heat and Diabetes Technology: Understanding the Impact

Dr. Hardik Suthar

MD (Medicine)

Consultant Cardiologist and Diabetologist,
Siddhivinayak Hospital, Modasa

As global temperatures rise, the impact of extreme heat on diabetes technology is becoming an increasing concern. Environmental factors, including temperature and humidity, play a crucial role in the functionality of medical devices, including those used for diabetes therapy. During clinical development, these factors are carefully studied, and manufacturers guarantee device performance only within specific temperature ranges. Glucose meter systems, essential for monitoring and diagnosing patients, can be affected by extreme temperatures, compromising their reliability. Understanding how extreme heat affects diabetes devices is crucial for ensuring accurate glucose monitoring.

Glucose monitoring devices

Glucometer: Heat can significantly impact glucometer function and blood glucose accuracy. The enzymatic reactions in test strips are highly sensitive to temperature, and extreme heat can disrupt these reactions, leading to inaccurate readings. While glucose meters compensate for moderate temperature changes, extreme heat or cold can still affect accuracy. Although the blood sample remains at body temperature, significant environmental temperature differences may require additional adjustments to ensure correct readings. Most glucometers have built-in temperature sensors that measure the device's internal temperature, not the reaction zone on the test strip. If the meter has been stored in a warm or cold place, such as a jacket pocket, the internal and strip temperatures may differ. This can lead to small deviations in glucose readings, especially in very hot or cold conditions.

To ensure accuracy, glucometers and test strips must be stored and used within the manufacturer's recommended temperature ranges. According to the World Health Organization (WHO), a typical glucometer should function properly within an operating temperature of at least 10 °C to 40 °C, with some models allowing up to 45 °C. Users should always refer to their specific device manual for precise usage and storage guidelines.

Insulin pens: Once an insulin pen is removed from refrigeration, it may be exposed to heat, which can reduce its effectiveness. Prolonged exposure to high temperatures or frequent movement can lead to insulin degradation, making blood glucose management more difficult.

To keep insulin safe, it is essential to store insulin pens within the recommended temperature range. One of the simplest and most affordable ways to do this is by using insulin cooling pouches. These pouches help maintain a safe temperature, especially during travel or extreme weather.

While traditional insulin pens do not track temperature, smart insulin pens now offer advanced features like dosage tracking, administration reminders, and, in some cases, continuous temperature monitoring. Some smart pens can even connect to smartphones and wearables to provide insights into insulin use. Ensuring proper insulin storage and using technology where possible can help people with diabetes maintain insulin effectiveness, especially in regions with high temperatures. Always follow manufacturer guidelines to store insulin pens safely.

Insulin pumps: Conventional and patch insulin pumps are carried close to the body, keeping insulin near body temperature. In hot conditions, insulin temperature may rise further, potentially affecting absorption due to increased skin blood flow. This can impair insulin action predictability.

Heat exposure may also increase the risk of occlusions in infusion sets, with shorter sets possibly reducing this risk. Additionally, insulin taken directly from the refrigerator can form air bubbles, affecting pump function—similar to insulin pens.

Automated insulin dosing systems: Automated insulin dosing (AID) systems, which rely on both glucose sensors and insulin pumps, are also affected by extreme temperatures. High heat can cause systematic errors in glucose measurement or insulin delivery, leading to incorrect dosing adjustments. Fluctuating temperatures may further disrupt the accuracy of these devices, as glucose sensors and insulin pumps may not function consistently, forcing the algorithm to make continuous corrections. This instability can impact the ability of AID systems to maintain target glucose levels effectively. Proper temperature management and awareness of these risks are essential for ensuring the reliable performance of AID systems in hot conditions.

Extreme heat poses significant challenges to diabetes technology, affecting the accuracy of glucose monitoring devices and the stability of insulin. Proper temperature management and advancements in heat-resistant devices are crucial for ensuring effective diabetes care in extreme conditions.

Key points

- Extreme heat can affect diabetes devices by disrupting glucometer accuracy, degrading insulin in pens and pumps, and causing infusion set occlusions.
- Smart insulin pens and cooling pouches help maintain insulin stability.
- Automated insulin dosing systems may face errors in high temperatures, impacting glucose control. Proper storage, heat-resistant technology, and frequent monitoring are essential for effective diabetes management in hot conditions.

Resources:

1. Heinemann L. Diabetes-Technology and the Environment: What Do We Have to Consider? *J Diabetes Sci Technol.* 2023;17(3):607–610. doi:10.1177/19322968221146194
2. MedSupply. Continuous Glucose Monitors. *MedSupply*. https://medsupply.us/blogs/continuous-glucose-monitors-65/. Accessed February 1, 2025.
3. Lam M, Louie RF, Curtis CM, *et al.* Short-Term Thermal-Humidity Shock Affects Point-of-Care Glucose Testing: Implications for Health Professionals and Patients. *J Diabetes Sci Technol.* 2014;8(1):83–88. doi:10.1177/1932296813514325

Diabetes Educator's Toolkit
Skill of the Month: Non-verbal Communication

Dr. Prashant Dixit

MBBS, MD, PGCDM, CCEBDM, PGCAT, CCCSICP, EPGCD

Sr. Consultant Diabetologist, DNA Sugar Clinic, New Delhi

Effective diabetes education requires a combination of critical skills, including motivational, interviewing, cultural competence, problem-solving, non-verbal communication, etc. These skills help educators build trust, improve patient adherence, and provide personalized guidance for self-management. This article discusses non-verbal communication as a skill for diabetes educators (DE) to help them enhance patient interactions.

Non-verbal communication

- **Attending:** A DE should always be attentive and receptive to the patient. Maintaining direct eye contact, offering a warm smile, sitting upright, keeping open arms, and leaning slightly forward can create a welcoming and supportive atmosphere. Helping the patient feel at ease enhances the effectiveness of counseling. This approach is far more effective than using complex medical terms while mumbling, avoiding eye contact, or appearing uninterested.
- **Body language of the DE:** Crossed legs, folded arms, or a lack of a smile may give the impression that the DE is unapproachable or disinterested, making the patient feel unwelcome.
- **Facial expressions of the DE:** Empathetic expressions are crucial, especially when the patient shares their difficulties, insecurities, and anxieties. A DE's facial expressions should convey understanding and support.
- **Active listening:** Understanding the patient's tone, speech delivery, emotions, and hesitations is key. Nodding, leaning slightly forward, and using verbal cues like *"Go on"* help create an encouraging and interactive dialog.
- **Body language of the person with diabetes:** Regardless of what the patient says, the DE should observe their posture, gestures, and facial expressions. Drooping shoulders or changes in tone and tempo may indicate distress or discomfort, providing important non-verbal cues.
- **Lack of privacy and interruptions:** If consultations take place in a distracting environment or the DE is frequently on calls or working on a laptop, the patient may feel ignored or unimportant. Ensuring privacy, minimizing interruptions, and keeping devices in silent mode fosters trust, making the patient feel valued and more likely to open up about their concerns.

Resource:

- American Diabetes Association. Mental health and diabetes: A workbook for healthcare professionals, Chapter 1. American Diabetes Association; 2020. https://professional.diabetes.org/sites/default/files/media/ada_mental_health_workbook_chapter_1.pdf

Frequently Asked Questions on Summertime and Diabetes Care

Dr. Harsha Pamnani

MBBS, MD Medicine (Gold Medalist), DNB Endocrinology

Consulting Endocrinologist,
Siddhanta Red Cross Hospital, Bhopal

1. I'm traveling to Dubai, and I'm worried about managing my type 1 diabetes in such a hot region. How do I ensure my insulin doesn't get spoiled, and what other precautions should I take?

Ans. Managing type 1 diabetes in a hot and sunny destination like Dubai requires extra care, but with a few precautions, you can stay safe and enjoy your trip.

Monitor your glucose levels: Hot weather may cause blood glucose fluctuations. Check your levels more frequently, especially before and after activities. If your glucose levels are low, have a fast-acting carbohydrate snack and a well-balanced meal.

Protect diabetes equipment: Heat can distort glucose meters and test strips, causing inaccurate readings. Store them at room temperature (no refrigeration) and away from direct sunlight. Never leave insulin in a car or near windows. For insulin pumps and sensors, follow manufacturer instructions and keep insertion sites clean.

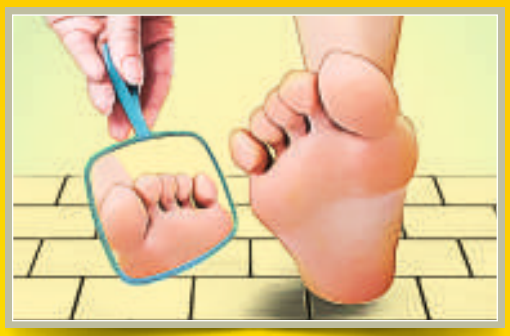
Insulin storage: Heat can damage insulin. Store it at a safe temperature or an insulin cooling pouch. Heat-damaged insulin may appear cloudy, grainy, or discolored. Do not use insulin that looks unusual, and consult a healthcare professional if unsure. Unused insulin can be stored in the refrigerator. Check your hotel–ensure there's a fridge in your room for backup storage.

Stay hydrated: Dehydration is a major risk in hot climates. Drink plenty of water or sugar-free drinks to replace fluids lost through sweat. Carry water with you at all times and sip regularly.

Heat exhaustion: Heat exhaustion causes dizziness, headaches, nausea, and cramps, often mimicking unstable blood glucose. Test your levels to confirm. If affected, move to a cool spot, rest, and hydrate. Severe signs like confusion or hallucinations suggest heat stroke–seek immediate medical care.

By following these precautions, you can stay safe and manage your diabetes effectively while enjoying your trip to Dubai.

2. As an individual with diabetes, how does the summer season affect my feet, and what specific steps should I follow to ensure proper foot care?



Ans. The summer season brings increased heat, exposure to sand, dust, and outdoor activities, all of which can affect foot health. People with diabetes may have reduced sensation (neuropathy), making foot care even more crucial, as unnoticed injuries can lead to complications.

- **Always wear protective footwear:** Choose well-fitting shoes with enough room for swelling to prevent friction and blisters. Avoid walking barefoot, even on the beach, to protect against sharp objects, burns, and injuries.
- **Choose breathable shoes:** Opt for ventilated footwear to prevent excessive sweating and discomfort.
- **Inspect your feet daily:** Check for cuts, blisters, redness, swelling, or skin changes. Early detection prevents infections.
- **Protect and hydrate your skin:** Before going out, apply sunscreen to your feet to shield against ultraviolet (UV) rays. Use a moisturizing cream daily to keep skin hydrated and supple, but avoid applying cream between the toes to prevent fungal infections. If your skin is oily, avoid cream-based moisturizers and opt for gel or water-based moisturizers.
- **Keep feet dry between toes:** Moisture buildup can lead to fungal infections. Gently pat the area dry with a soft towel.

3. I have type 1 diabetes and love staying active, but I've heard that hot weather can affect blood glucose levels. What precautions should I take to exercise safely in the summer heat?

Ans. The high heat and humidity of summer impact people with type 1 diabetes more than others. When exercising in hot weather, the body sweats more to cool down. However, excessive sweating can lead to dehydration, which raises blood glucose levels. High blood glucose causes frequent urination, leading to further dehydration and an even greater glucose spike. Additionally, heat can increase insulin absorption, increasing the risk of hypoglycemia.

Precautions to exercise safely

- **Stay hydrated:** Drink water 30 minutes before exercise and every 15–20 minutes during exercise. Avoid sugary drinks, caffeine, and alcohol, as they can contribute to dehydration.
- **Exercise smart:** Slow your pace in the heat and opt for morning or evening workouts. Try indoor, swimming, or water-based activities to stay cool.
- **Monitor blood sugar frequently:** Heat can cause unpredictable glucose fluctuations, so check before, during, and after exercise. Carry fast-acting glucose for lows.
- **Protect your feet:** Wear breathable, well-fitted shoes and moisture-wicking socks to prevent blisters and infections. Check feet daily for injuries.
- **Keep insulin cool:** Store insulin and supplies in a cooling pouch. Never leave them in a hot car or direct sunlight.

Recipe: Cold Cucumber Soup

Serves: 2

Ingredients	Amount
Dark green cucumbers	2 nos. (medium-sized: 250 g)
Unflavored yogurt	1 cup
Dill leaves	1/4th cup (chopped) + 1 teaspoon (for garnishing)
Mint leaves	A few
Fresh lemon juice	1 tablespoon
Garlic clove	2 nos.
Extra virgin olive oil	1 teaspoon
Salt	To taste
Black pepper powder	To taste (freshly pounded)
1 cup: 250 mL; 1 tablespoon: 15 mL; 1 teaspoon: 5 mL	

Method

1. Blend the cucumbers, yogurt, dill leaves, olive oil, lemon juice, garlic, salt, and black pepper until smooth. Refrigerate for at least 4 hours.
2. Serve garnished with chopped dill leaves and a few mint leaves. You can also add freshly ground black pepper for extra flavor and top with a few cucumber slices for added crunch.

Role Play

Scenario: A 50-year-old man with type 2 diabetes mellitus (T2DM) comes to a diabetes educator with a mild fever, reporting high blood glucose (BG) levels (fasting: 220 mg/dL, postprandial: 300 mg/dL). The patient mentions difficulty in eating regular meals due to loss of appetite and is unsure how to manage their condition.

Mr. XYZ: Hello! I've been feeling unwell with a fever for the past four days. My appetite is poor, and I've noticed my blood glucose levels are high. I'm very worried.

Diabetes educator: Good afternoon, Mr. XYZ! It's understandable to feel concerned. When you're unwell, your body releases stress hormones, which can raise your blood glucose levels. Have you been able to drink fluids or eat anything?

Mr. XYZ: I've been drinking water and had some soup yesterday, but I'm not eating much.

Diabetes educator: That's a good start. Staying hydrated is essential, especially when you have a fever. You need to increase your fluid intake by drinking water, sugar-free electrolyte drinks, clear soups, or buttermilk. If your blood glucose levels are on the lower side, a small amount of coconut water can also be included. Fluids help maintain body temperature during a fever and won't significantly spike your blood glucose levels.

Mr. XYZ: What about food? I don't feel like eating anything. Since I'm not eating, I've stopped taking my diabetes medicines because I fear my sugar levels might drop too low.

Diabetes educator: That's a common concern during illness. Aim for small, frequent meals that are easy to digest. You can try dahi kadhi with rice, vegetable khichdi, vegetable soups without cornflour, or whole-grain meals like oats moong khichdi with added vegetables.

Mr. XYZ: Sure, I'll try these options. Should I restart my diabetes medications since my sugar levels are now running high? I don't understand why my sugars are rising even though I'm not eating much.

Diabetes educator: That's an important question. You shouldn't adjust your diabetes medications without consulting your doctor. Fever, infections, or any illness can raise blood glucose levels—even if you're not eating much. So, it's important not to skip your medication doses. Have small, frequent meals and monitor your glucose levels regularly. See your doctor soon to discuss your high readings and whether you might need temporary adjustments to your medications.

Mr. XYZ: Sure, I'll do that. Is there anything else I should watch for?

Diabetes educator: Yes, keep an eye on signs of dehydration, such as dry mouth or dark urine, and watch for unusual symptoms like chest pain or severe fatigue. Also, rest as much as you can. Fever can drain your energy, so focus on recovery.

Mr. XYZ: Thank you for your time. I'll keep these suggestions in mind.

Diabetes educator: You're welcome. Managing diabetes during illness can be tricky, but you're taking the right steps. Take care!

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Metformin Hydrochloride 1000 mg SR + Glimepiride 1 mg

Glycomet®-GP 2
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Abridged Prescribing Information

Active Ingredients: Metformin hydrochloride (as sustained release) and glimepiride tablets **Indication:** For the management of patients with type 2 diabetes mellitus when diet, exercise and single agent (glimepiride or metformin alone) do not result in adequate glycaemic control. **Dosage and Administration:** The recommended dose is one tablet daily during breakfast or the first main meal. Each tablet contains a fixed dose of glimepiride and Metformin Hydrochloride. The highest recommended dose per day should be 8 mg of glimepiride and 2000mg of metformin. Due to prolonged release formulation, the tablet must be swallowed whole and not crushed or chewed. **Adverse Reactions:** For Glimepiride: hypoglycaemia may occur, which may sometimes be prolonged. Occasionally, gastrointestinal (GI) symptoms such as nausea, vomiting, sensations of pressure or fullness in the epigastrium, abdominal pain and diarrhea may occur. Hepatitis, elevation of liver enzymes, cholestasis and jaundice may occur; allergic reactions or pseudo allergic reactions may occur occasionally. For Metformin: GI symptoms such as nausea, vomiting, diarrhea, abdominal pain, and loss of appetite are common during initiation of therapy and may resolve spontaneously in most cases. Metallic taste, mild erythema, decrease in Vit B12 absorption, very rarely lactic acidosis, Hemolytic anemia, Reduction of thyrotropin level in patients with hypothyroidism, Hypomagnesemia in the context of diarrhea, Encephalopathy, Photosensitivity, hepatobiliary disorders. **Warnings and Precautions::** For Glimepiride: Patient should be advised to report promptly exceptional stress situations (e.g., trauma, surgery, febrile infections), blood glucose regulation may deteriorate, and a temporary change to insulin may be necessary to maintain good metabolic control. Metformin Hydrochloride may lead to Lactic acidosis; in such cases metformin should be temporarily discontinued and contact with a healthcare professional is recommended. Sulfonylureas have an increased risk of hypoglycaemia. Long-term treatment with metformin may lead to peripheral neuropathy because of decrease in vitamin B12 serum levels. Monitoring of the vitamin B12 level is recommended. Overweight patients should continue their energy-restricted diet, usual laboratory tests for diabetes monitoring should be performed regularly. **Contraindications:** Hypersensitivity to the active substance of glimepiride & Metformin or to any of the excipients listed. Any type of acute metabolic acidosis (such as lactic acidosis, diabetic ketoacidosis, diabetic pre-coma). Severe renal failure (GFR<30ml/min). In pregnant women. In lactating women.Acute conditions with the potential to alter renal function (dehydration, severe infection, shock, intravascular administration of iodinated contrast agents); acute or chronic disease which may cause tissue hypoxia (cardiac or respiratory failure, recent myocardial infarction, shock); hepatic insufficiency; acute alcohol intoxication; alcoholism. **Use in a special population:** Pregnant Women: Due to a lack of human data, drugs should not be used during pregnancy. Lactating Women: It should not be used during breastfeeding. Pediatric Patients: The safety and efficacy of drugs has not yet been established. Renal impairment: A GFR should be assessed before initiation of treatment with metformin containing products and at least annually thereafter. In patients at increased risk of further progression of renal impairment and in the elderly, renal function should be assessed more frequently, e.g. every 3-6 months.

Additional information is available on request.

Last updated: March 13, 2023

*In case of any adverse events, kindly contact: pv@usv.in

For the use of registered medical practitioner, hospital or laboratory.*

USV Private Limited
Arvind Vithal Gandhi Chowk, B. S. D. Marg, Govandi, Mumbai - 400 088. | Tel.: 91-22-2556 4048 | Fax: 91-22-2558 4025 | www.usvindia.com

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