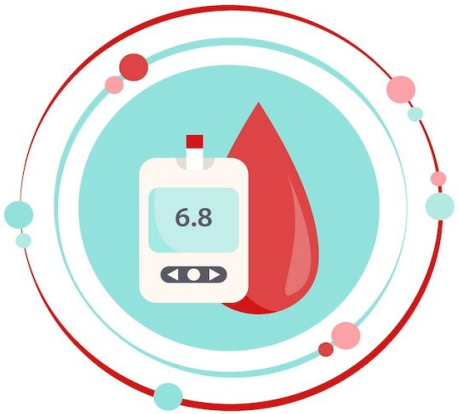
# SELF MANAGEMENT STRATEGIES AND DIGITAL TOOLS




Presented By,
Dr. Shynee. k

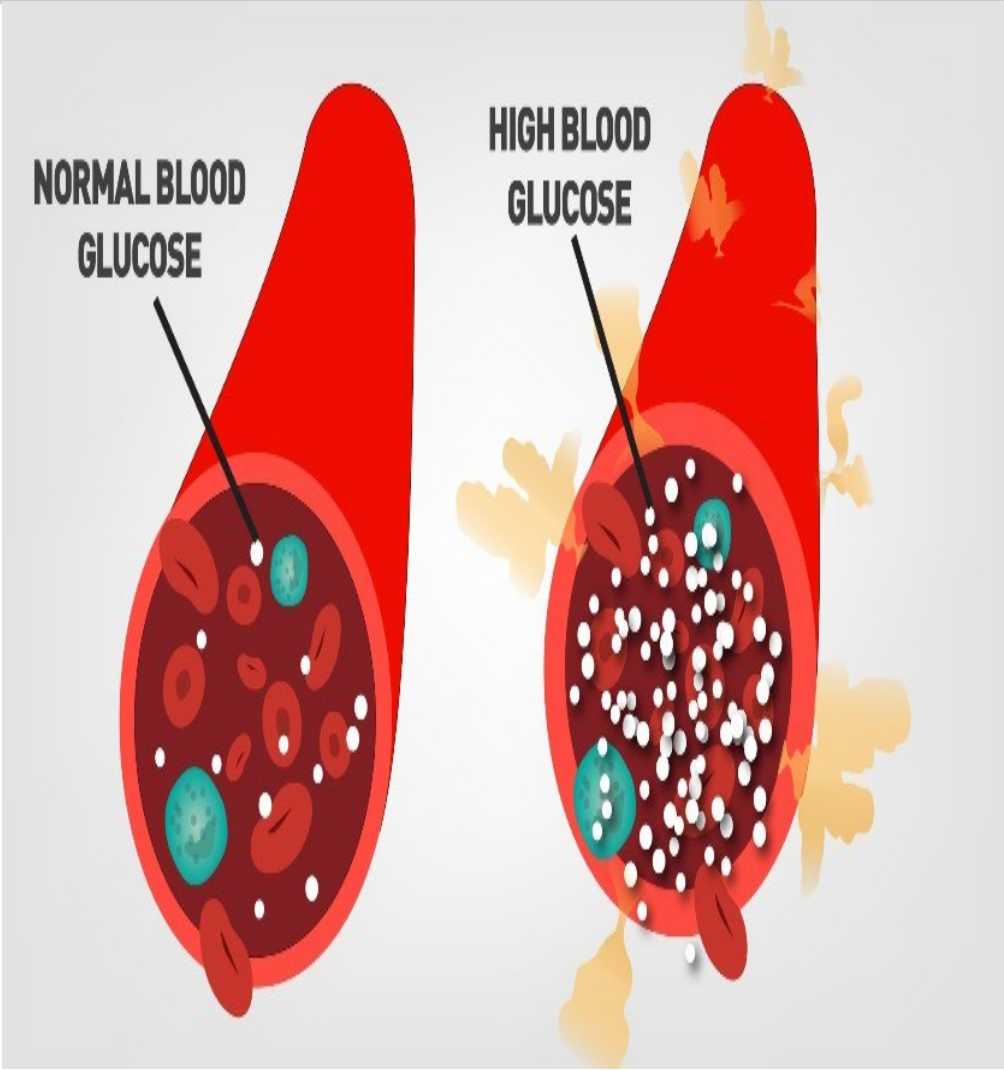
# SELF MANAGEMENT STRATEGIES

- ✓ SMBG
- ✓ Exercise
- ✓ Adherence
- ✓ Yoga
- ✓ hypo/hyperglycemia prevention

# INTRODUCTION

Diabetes Mellitus is a long-term metabolic condition in which the body either does not produce enough insulin or cannot use it effectively.

- This leads to elevated blood sugar levels, which, over time, can affect vital organs such as the heart, kidneys, eyes, and nerves.
- Although diabetes is a chronic condition, it can be well managed through healthy eating, regular physical activity, proper medication, and consistent blood sugar monitoring.




**With the right care, individuals with diabetes can lead healthy, active, and productive lives.**

# Normal Blood Sugar Values

1

**Random Blood (RBS))**
**Normal**: < 140 mg/Dl
**Prediabetes**: 140–199 mg/dL
**Diabetes**: ≥ 200 mg/dL (with symptoms)

2

**Postprandial Blood Sugar (PPBS)** - 2 hours after a meal)
**Normal: < 140 mg/dL**
**Prediabetes: 140–199 mg/dL**
**Diabetes: ≥ 200 mg/dL**

3

**HbA1c (3 months average sugar)**
**Normal**: < 5.7%
**Prediabetes:** 5.7% – 6.4%
**Diabetes**: ≥ 6.5%

# 1.Self-Monitoring of Blood Glucose (SMBG)

- Check blood sugar as advised:
  - **FBS** (fasting)
  - **PPBS** (2 hours after meal)
  - **Random sugar**
  - **Bedtime sugar**
- Record readings in a notebook/app.
- Helps adjust medication, diet, activity, and identify hypoglycaemia.

# YOGA

- Yoga is a gentle and effective mind–body practice that helps improve blood sugar control, reduce stress, and enhance overall well-being.
- Through a combination of postures, breathing exercises, and relaxation techniques, yoga supports better insulin sensitivity, improves circulation, and promotes a healthier lifestyle.
- When practiced regularly, it becomes a powerful tool in managing diabetes and preventing long-term complications.

# ADHERENCE

## Importance of Adherence

1.Helps maintain stable blood sugar levels.

2.Prevents long-term complications (kidney, eye, heart, nerve problems).

3.Improves energy levels and overall quality of life.

Reduces hospital visits and emergencies.

## How to Improve Adherence

1.Use reminders or mobile apps for medications and SMBG.

2.Educate patients about why each treatment is important.

3.Encourage family support.

4.Simplify medication schedules if possible.

5.Proper counseling about insulin technique and diet plans.

6.Build confidence through regular follow-ups.


## Benefits of Good Adherence

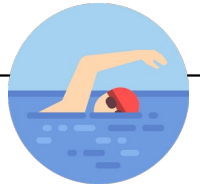
1.Stable blood glucose levels (FBS, PPBS, HbA1c).

2.Reduced risk of complications.

3.Better physical fitness and mental well-being.

4.Improved longevity and quality of life.

# EXERCISES FOR PATIENTS WITH DIABETES

| Type of Exercise | Picture | Uses |
|---|---|---|
| **Brisk Walking (30–45 mins/day)** |   | ▪ Improves insulin sensitivity<br>▪ Helps control weight<br>▪ Reduces blood sugar levels<br>▪ Easy and safe for all age groups |
| **Cycling (20–30 mins/day)** |  | ▪ Low-impact cardio<br>▪ Strengthens leg muscles<br>▪ Boosts heart health<br>▪ Suitable for overweight patients |
| **Swimming (30 mins, 3–4 days/week)** |  | ▪ Excellent for joint pain or neuropathy<br>▪ Full-body workout<br>▪ Improves circulation<br>▪ Safe for elderly patients |
| **Strength Training (2–3 days/week)** |  | ▪ Increases muscle mass → better glucose uptake<br>▪ Enhances overall metabolic rate<br>▪ Prevents muscle loss in older adults(Use dumbbells, resistance bands, or bodyweight exercises) |

# EXERCISES FOR PATIENTS WITH DIABETES

| Type of Exercise | Picture | Uses |
|---|---|---|
| **Foot Exercises** |  | ▪ Essential for patients with neuropathy<br>▪ Improves circulation<br>▪ Reduces stiffness and risk of injuries(Toe curls, ankle rotations, heel raises) |
| **Aerobic Exercises** |  | ▪ Zumba, low-impact aerobics, dance fitness<br>▪ Improves heart and lung health<br>▪ Burn calories and improve sugar control |
| **Flexibility & Stretching (10 mins/day)** |  | ▪ Reduces stiffness<br>▪ Prevents injuries<br>▪ Improves mobility |
| **Core Exercises** |  | ▪ Planks, leg raises, bridge<br>▪ Reduces central obesity<br>▪ Improves posture and balance |

# EXERCISES FOR PATIENTS WITH DIABETES

| Type of Exercise | Picture | Uses |
|---|---|---|
| Chair Exercises (for elderly or limited mobility) |  | ▪ Seated marching<br>▪ Seated arm lifts<br>▪ Seated leg extension<br>Safe, simple, and effective for sugar control. |
| Safety Tips |  | ❑ Check blood sugar before and after exercise<br>❑ Stay hydrated<br>❑ Carry glucose tablets to avoid hypoglycaemia<br>❑ Wear comfortable shoes<br>❑ Avoid strenuous exercise if sugar is >300 mg/dL or <70 mg/dL |

# Hypo & Hyperglycemia prevention

# Hypoglycaemia (Low Blood Sugar) – Prevention

## 1. Eat Regular Meals

- Do not skip meals or delay eating.
- Include balanced meals with carbs + protein.

## 2. Take Medicines on Time

- Follow exact dosage and timing advised by the doctor.
- Avoid taking extra insulin/tablets accidentally.

## 3. Check Blood Sugar Regularly

- Especially before exercise, before driving, or when feeling weak.

## 4. Carry Fast-Acting Carbs

- Glucose tablets / sugar packets / fruit juice.
- Useful during sudden dips in sugar.

## 5. Adjust Food & Medicine During Exercise

- Eat a small snack before exercise if sugar tends to drop.
- Monitor sugar before and after physical activity.

## 6. Avoid Alcohol on an Empty Stomach

- Alcohol increases the risk of night-time hypoglycaemia.

## 7. Recognize Early Symptoms

- Shaking, sweating, hunger, dizziness, irritability.
- Treat immediately to prevent severe episodes.

# Hyperglycemia (High Blood Sugar) – Prevention

## 1. Follow the Prescribed Medication Plan

- Do not skip medicines or insulin doses.
- Take insulin with correct technique and timing.

## 2. Follow the Recommended Diet

- Limit sugars and refined carbs.
- Choose low-GI foods, whole grains, vegetables, lean proteins.
- Portion control is essential.

## 3.Stay Physically Active

- Regular exercise helps lower blood sugar.
- Walking 30–45 minutes a day is very effective.

## 4.Monitor Blood Glucose Frequently

- Check fasting and post-meal sugars.
- Helps identify rising sugar levels early.

## 5.Manage Stress

- Stress increases cortisol → raises blood sugar.
- Practice yoga, meditation, breathing exercises.

## 6.Stay Hydrated

- Water helps flush excess glucose from the blood

## 7.Avoid Overeating

- Especially during festivals or social events.

## 8.Take Care During Illness

Infections can raise sugar levels.

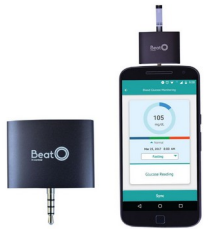
Follow sick-day rules: test sugar more often, continue medication.

# Digital AI Tools Diabetes

# Tools in Diabetes

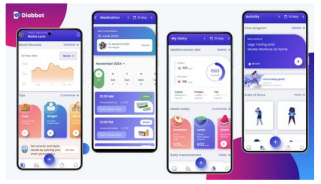
## Continuous Glucose Monitoring (CGM)

- Small sensor worn on the arm/abdomen.
- Measures glucose every few minutes.
- Shows trends → rising or falling sugar.
- Helps patients avoid hypo/hyperglycemia.
- Examples: **Freestyle Libre, Dexcom G6, Medtronic Guardian**.



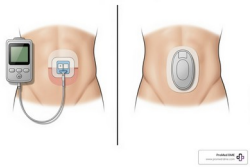

## Smart Glucometers

- Digital glucometers connected to mobile apps.
- Automatically record readings.
- Provide graphs, alerts, and tracking.
- Useful for patients who forget to log sugars.



## AI-Based Diabetes Apps

- Track sugar, diet, exercise, and medication.
- Notify users about high/low readings.
- Suggest meal adjustments and activity levels.
- Examples:BeatO,HealthifyMe, OneTouch Reveal, mySugr.



## Insulin Pumps & Smart Insulin Pens

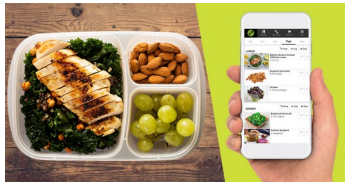
**Insulin Pumps**

- Deliver insulin continuously.
- Paired with CGM for automated insulin adjustments.
- AI predicts highs and lows → adjusts insulin dose.

**Smart Pens**

- Track insulin dose, timing, and missed doses.
- Connect to mobile apps for reminders.

# Tools in Diabetes..



## AI-Powered Diet & Meal Planning Tools

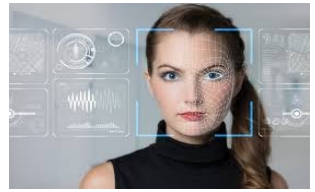
- Identify food items from photos.
- Count calories and carbs.
- Recommend meals based on blood glucose patterns.
- Help maintain consistent carbohydrate intake.

## Wearable Fitness Devices

- Smartwatches and trackers monitor:
- Steps
- Heart rate
- Calories burned
- Sleep quality.
- Help patients stay active and reduce insulin resistance.

## Telemedicine & Remote Monitoring

- Video consultations with diabetologists.
- AI tools review patient logs and alerts doctors.
- Helps manage diabetes without frequent hospital visits.



## AI in Retinopathy Screening

- AI tools analyse retinal images.
- Detect early diabetic retinopathy.
- Fast, accurate detection → prevents vision loss.

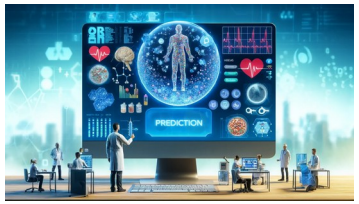
# Tools in Diabetes...

## Smart Pill Reminders & Medication Apps

- Remind patients to take tablets/insulin.
- Reduce missed doses.
- Improve adherence and sugar control.


## AI-Based Risk Prediction Tools

- ❑ Predict risk of:
  - Hypoglycemia
  - Hyperglycemia
  - Diabetes complications.
- ❑ Help doctors adjust treatment early.




## Benefits of AI & Digital Tools in Diabetes

- Better glucose control
- Fewer complications
- Higher treatment adherence
- Personalized care
- Real-time feedback
- Better self-management

# Thank You...