



# Managing Blood Sugars for Disease Prevention

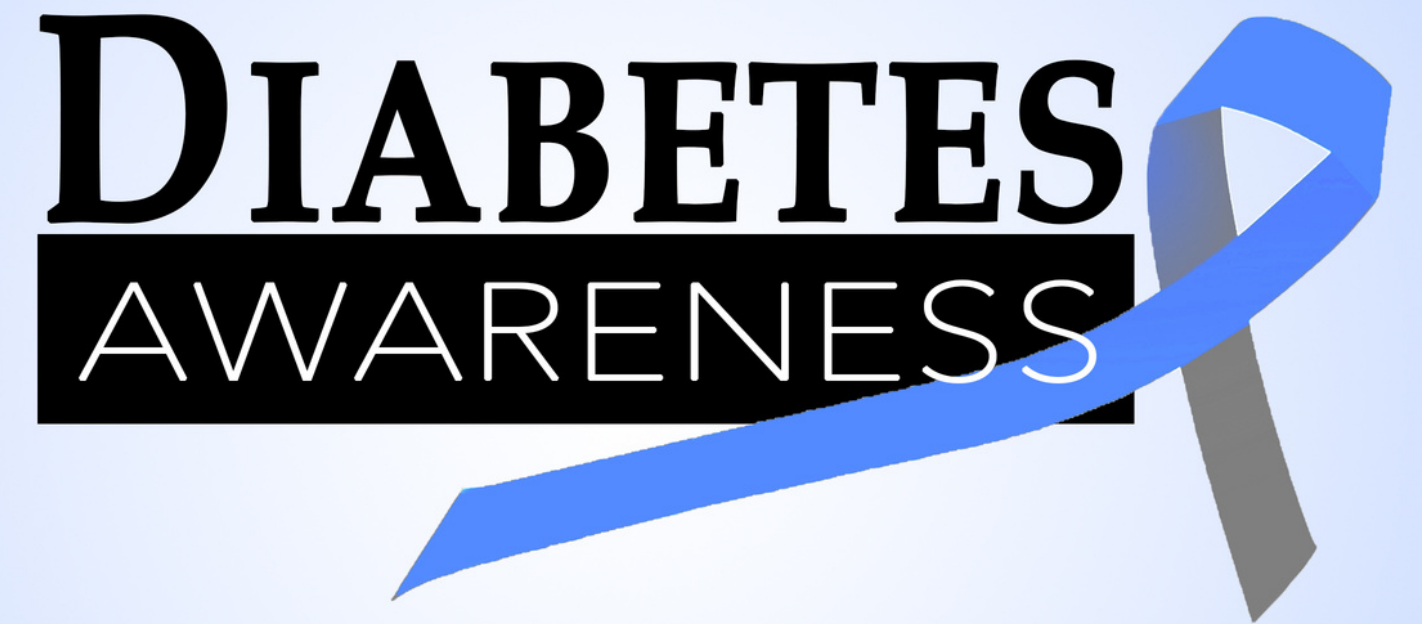
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# Objectives of This Presentation:

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- Diabetes and Complications
- Understand why South Asians are at such a high risk for developing type 2 diabetes
- Better understanding of insulin resistance and role of visceral fat
- Pros and cons of South Asian Cuisine
- Role of exercise and sleep to help manage blood sugar and insulin
- Meal timings to manage insulin and blood sugars
- Supplements to help with blood sugar management





# Salaams!

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- Registered Dietitian & Diabetes Educator
- Clinical dietitian at the Medcan Clinic in Toronto and virtual dietitian
- Specializes in prediabetes, diabetes, PCOS and insulin resistance

# Diabetes In Canada

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- Diabetes is a disease in which your body either can't produce insulin or can't use insulin properly. Insulin is a hormone produced by your pancreas.
- Insulin's role is to regulate the amount of glucose (sugar) in the blood.
- Eleven million Canadians are living with diabetes or prediabetes. Likely diabetes affects you or someone you know.
- No cure for diabetes - lifestyle and diet choices are a form of medication



# Diabetes Complications

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- Type 2 diabetes can lead to a variety of complications that affect your body from head to toe, including stroke, blindness, amputation and more.
- **Kidney disease**
- **Erectile dysfunction**
- **Eye damage** (diabetic retinopathy)
- **Heart disease & stroke** People with diabetes may develop heart disease 15 years earlier than those without diabetes.
- **High Blood Pressure**
- **Mental Health** - anxiety and depression - diabetes distress
- **Nerve Damage** - can lead to amputation

South Asians are 6x more likely to develop type 2 diabetes than the general population.



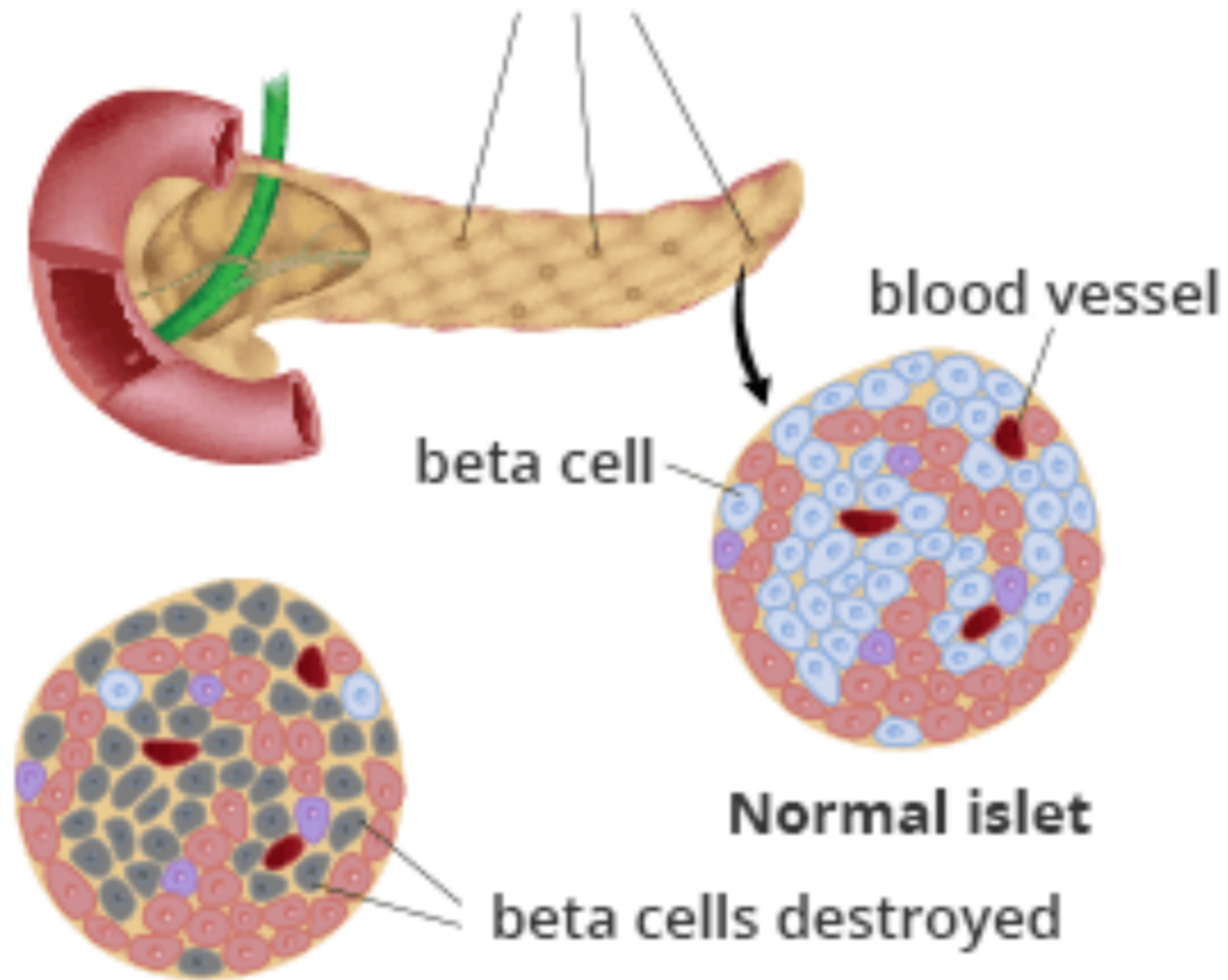


# Why South Asians?



1. They have less muscle and more abdominal fat, which increases insulin resistance. Seen in newborns.
2. Imaging results show that Asians of a healthy BMI have more fat around organs and the belly area than Europeans with the same BMI (visceral fat). South Asians, have lower beta cell function and low lean muscle mass.
3. Diet and Lifestyle trends

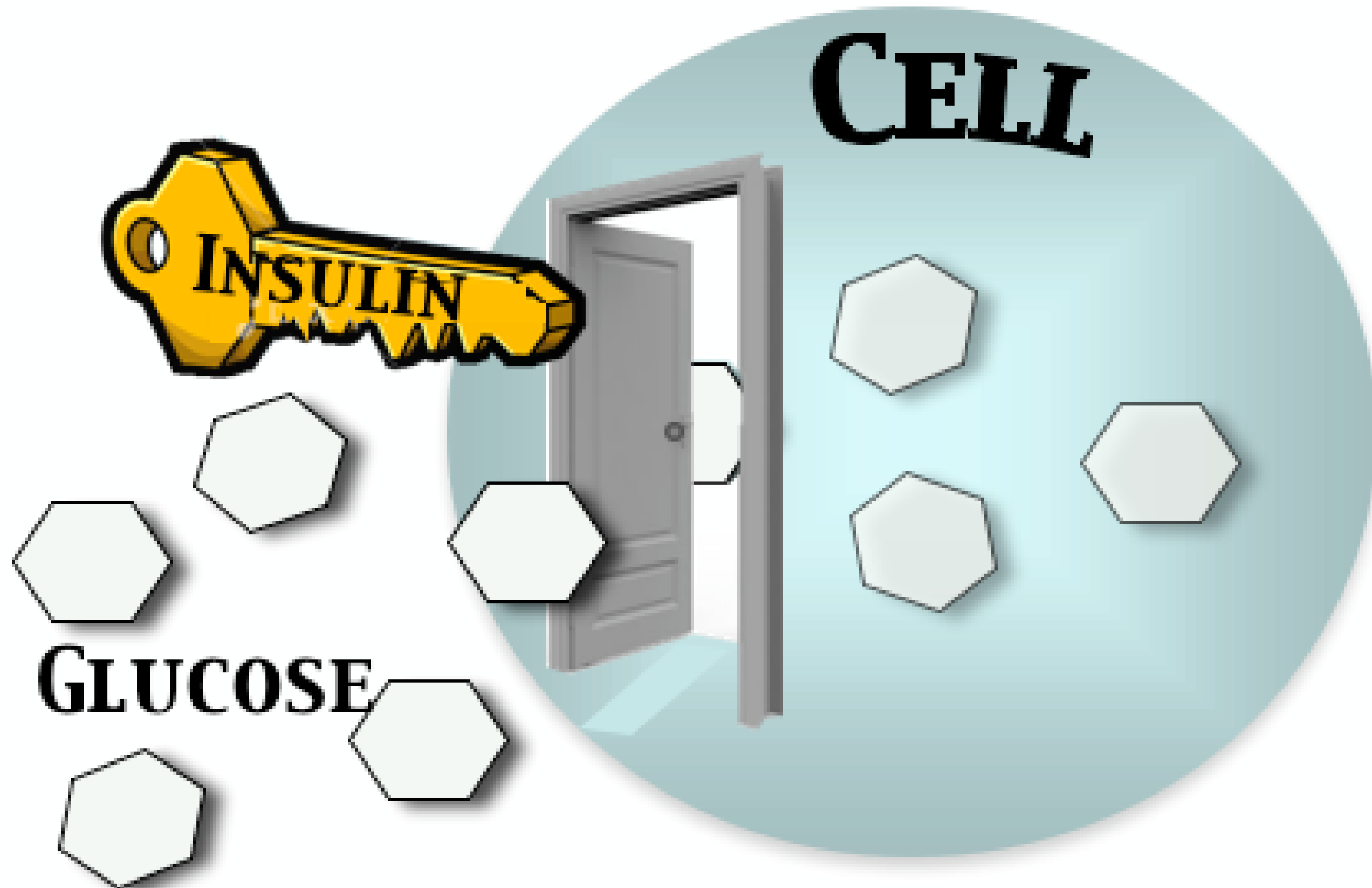
## Pancreatic islets



**Type 1 diabetes**



# INSULIN RESISTANCE



Hyperglycemia



Beta cell dysfunction

>

Insulin resistance



Hyperglycemia



Type 2 diabetes





# Risk Factors for South Asian

- Less muscle and more abdominal fat, which increases insulin resistance
- BMI > 23
- Waist circumference Male:  $\geq 90$  cm (35.5 ") & Female:  $\geq 80$  cm (31.5 ")
- Smoking
- Sedentary lifestyle
- White rice and refined grains
- Availability of fast food and processed foods and sugary drinks





# Visceral Fat

aka Belly Fat

## UNHEALTHY BODY

### SUBCUTANEOUS FAT

Subcutaneous fat is the fat just under your skin—the fat you can pinch. When you lose subcutaneous fat, your Percent Body Fat (PBF) goes down.

*Subcutaneous Fat*

### VISCERAL FAT

Visceral fat wraps around your organs, creating inflammation and interfering with organ function. This fat causes a big belly.

### DISEASE

Higher body fat is associated with type 2 diabetes, stroke, heart disease, and some cancers.

*Visceral Fat*

## HEALTHY BODY

### LOWER BODY FAT

When you lose visceral and subcutaneous fat, your waistline gets smaller and your percent body fat goes down. You can't eliminate all the fat on your body—nor would you want to! Having some body fat is necessary for your body to function properly.

### HEALTH

Lower body fat is associated with lower cholesterol and better insulin sensitivity.

### ENERGY

Lower body fat is associated with increased energy, brain function, and stamina.

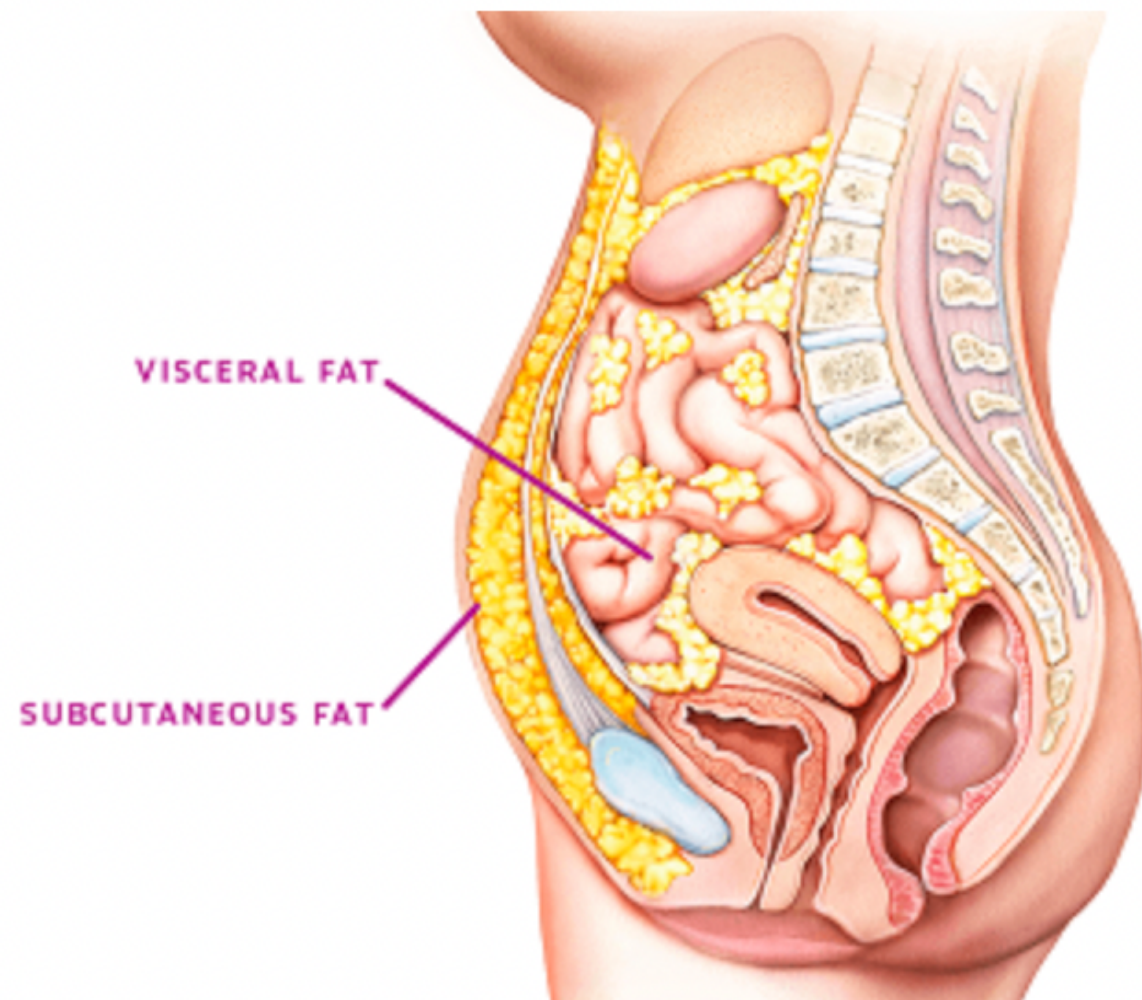


**ADVANTAGE**  
TRAINING





# Dangers of Visceral Fat



1. Visceral fat makes certain proteins that inflame your body's tissues and organs and narrow your blood vessels. Leading to high blood pressure, cholesterol and diabetes.  
You may have a flat tummy and still have visceral fat.
2. Visceral fat is biologically active. Think of fat as an endocrine organ or gland, producing hormones and other substances that can profoundly affect our health.
3. Substances released by visceral fat, including free fatty acids, enter the portal vein and travel to the liver, where they can influence the production of blood lipids. Visceral fat = higher total cholesterol and LDL (bad) cholesterol, lower HDL (good) cholesterol, and insulin resistance.

# Risk Factors for Insulin Resistance

- **A family history of diabetes or GDM**
- A sedentary (not active) lifestyle
- Race
- Age (the older you get, the more your risk increases > 40 )
- **High TG, low HDL, high LDL, A1c > 5.5**
- Some medicines
- Poor sleep habits
- Smoking
- **High waist circumference**
- Diet high in processed carbs and fat, low fibre and low omega 3



# Benefits of South Asian Cuisine



Focus on **whole foods** that are packed with **minerals, vitamins, fibre and antioxidants**:

- fruits & veggies
- whole grains (bagra, millet, barley)
- beans and lentils (mung, masoor, toor)
- lean protein (chicken, fish, eggs)
- healthy fats (avocado, nuts, seeds, olive oil)
- Turmeric, ginger, garlic, cloves, cinnamon, cayenne, black pepper



# Drawbacks of the South Asian Cuisine



- Heavy dishes (Biryani, Meat dishes)
- Rich (Butter Chicken)
- Fried (Samosa, Bhajia, Pakoras, Kebab)
- Carb Heavy ( Mandazi, Tumboa, Mikate,
- Rice, Naans, Parathas)
- High Sugar (Desserts, Sweetened Drinks)
- Cultural expectations, grazing



## A top-down view of various carbohydrate-rich foods arranged around a central wooden cutting board. The word "CARBS" is written in white chalk on the board. Surrounding the board are items like bread, oranges, sweet potatoes, pasta, bananas, apples, nuts, seeds, and leafy greens.

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- The graph illustrates the difference in blood glucose response between high and low glycemic index (GI) foods. The y-axis represents 'BLOOD GLUCOSE LEVELS' and the x-axis represents 'TIME / HOURS'.
- HIGH GI:** Represented by a red curve that rises sharply to a high peak and then falls rapidly, returning to baseline quickly.
  - LOW GI:** Represented by an orange curve that rises more gradually to a lower peak and then falls more slowly, maintaining elevated levels for a longer duration.
- Labels '1' and '2' are present on the x-axis, likely indicating specific time points or markers for the curves.



## A top-down view of a variety of healthy food items arranged on a dark wooden surface. The items include several slices of whole-grain bread, some topped with seeds, and a loaf of sesame seed bread. There are bowls of orange lentils, brown lentils, and sliced almonds. Fresh vegetables include green beans, mushrooms, broccoli, corn, and celery. Fruits include strawberries, cherry tomatoes, a whole onion, and a red apple. Other items include hazelnuts, garlic, and a small bowl of black seeds. The image is framed by a dark border with navigation icons in the corners.

- Not digested in our body
- Expands and takes up space in our stomach = full for longer (natural appetite suppressant)
- Found in plant foods
- Great for digestive health
- Healthy microbiome
- Help keep blood sugars steady
- Disease prevention



## Asian Diet Pyramid





# Balanced Meal Example



**MINIMIZE THIS**



**AIM FOR THIS**

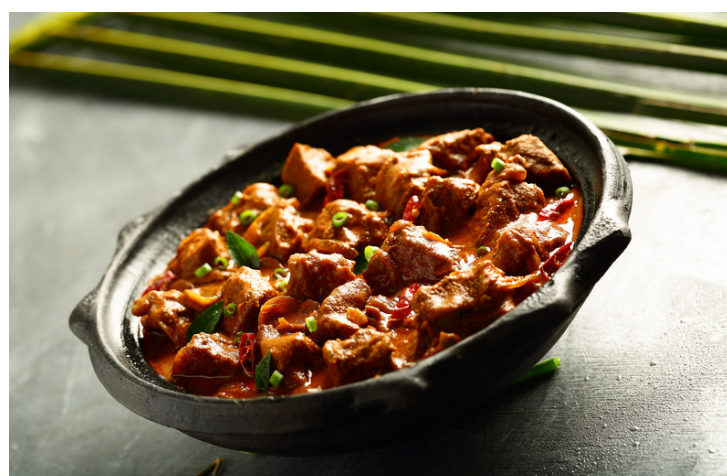


# Healthy Food Swaps





# Healthy Food Swaps





# Exercise and Sleep



- Walking - going outside can boost energy levels especially after meals
- Strength training helps with muscle loss - helps improve insulin sensitivity
- Aim for 7-9 hours of sleep minimum - one night of bad sleep increases insulin resistance and increase blood sugars.
- Lack of sleep raises cortisol which can increase insulin
- Stress management - evening and morning routines



# Supplements



- Food first!
- **Magnesium glycinate** - involved in your body's ability to secrete insulin and may help your cells use insulin more effectively
- **Vitamin D** - Evidence indicates that vitamin D treatment improves glucose tolerance and insulin resistance. Has an active role in regulating pancreatic beta cells, which make insulin.
- **Omega 3** - can help fight inflammation and lower triglycerides and improve insulin resistance



# Meal Timings



- Balanced Meals
- Avoid snacking
- More Insulin Resistance as day goes on
- Intermittent Fasting can be beneficial to lower insulin levels
- Avoid evening snacking
- To curb sugar cravings have a savoury breakfast
- Also try blood sugar testing - very powerful in helping you figure out what works for you!





# **Thank you!**

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**Master Blood Sugar Balance  
Coaching Program**