



#WeightInDiabetes  
**Break the partnership**  
 between diabetes and obesity\*

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**TALK TO YOUR DOCTOR**  
 ABOUT NEW POSSIBILITIES  
 IN DIABETES MANAGEMENT

YOUR GO-TO GUIDE  
 FOR UNDERSTANDING  
 THE LINK BETWEEN  
**DIABETES AND OBESITY**



Scan the QR code



**Looking for answers about diabetes management?**  
 Find helpful info, tools, and resources on [aboutdiabetes.in](https://aboutdiabetes.in)

This is not a substitute for medical advice. Please refer to your healthcare professional for complete medical information. Apis Bull is a registered trademark of Novo Nordisk A/S

**about diabetes**



IN22CD000230



\*Carbone S. Prog Cardiovasc Dis. 2019 Jul-Aug;62(4):327-333.

\*Carbone S. Prog Cardiovasc Dis. 2019 Jul-Aug;62(4):327-333.



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## Diabetes and Obesity: The Connection



## DEFINING DIABETES AND OBESITY



In type 2 diabetes<sup>1</sup>, your body may not make enough insulin, or it does not respond to it as normal. It also does not use insulin as well as it should.

People with type 2 diabetes may experience an impaired response to incretins, the hormones that help regulate blood sugar. GLP-1 hormone is one of those hormones.<sup>2</sup>



Obesity is a chronic progressive disease that requires long-term management.<sup>3</sup>

T2DM: Type 2 diabetes mellitus, GLP-1: Glucagon-like peptide 1, BMI: Body Mass Index  
Reference:

1. Al-Goblan AS et al. Diabetes Metab Syndr Obes. 2014;7:587-91.

2. Kim W, Egan JM. Pharmacol Rev. 2008;60:470-512

3. Aziz N, Kallur et al. J Clin Diagn Res. 2014 May;8(5):OC01-3 less than 2 days ago (v0.1)



# THE CONNECTION: TYPE 2 DIABETES AND OBESITY

The common factor in both T2DM and obesity are linked to insulin resistance<sup>1</sup>



Almost **7/10** PwD live with obesity or are overweight<sup>2</sup>



There is a **7X** increased risk of mortality in PwD who live with obesity or are overweight.<sup>1</sup>



T2DM: Type 2 diabetes mellitus, PwD: Patients with diabetes  
References:

1. Borgharkar SS et al. BMJ Open Diabetes Res Care. 2019 Jul 14;7(1):e000654.
2. Oldridge NB et al. J Clin Epidemiol. 2001 Sep;54(9):928-34



## Know your BMI



# CALCULATING THE BODY MASS INDEX



How can you calculate your BMI?

The following formula can be used to calculate one's BMI, where kg is the person's weight in kilograms and m<sup>2</sup> is their height in meters squared.

$$\text{BMI (Kg/m}^2\text{)} = \text{Weight (kg)} / [\text{Height (m)}^2]$$

Classification	BMI
Underweight	≤ 18.5
Normal weight	18.6 - 22.9
Overweight	23.0 - 24.9
Obesity class 1	25.0 - 29.9
Obesity class 2	30.0 - 34.9
Obesity class 3	≥ 35

Scan to  
check your BMI









References:

1. Weir CB. In: StatPearls [Internet] 2022 Jun 27 [cited 2022 Nov 7]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK541070/>
2. S V M, et al. Indian J Endocrinol Metab. 2022 Jul-Aug;26(4):295-318.

## Complications of #WeightinDiabetes



## OBESITY IN PwD INCREASES RISK OF SEVERAL COMORBIDITIES SUCH AS

-  Kidney diseases<sup>1</sup>
-  Cancer<sup>2</sup>
-  Eye disease<sup>3</sup>
-  Depression<sup>4</sup>
-  Obstructive sleep apnoea  
(sleep related breathing problems)<sup>5</sup>
-  Mobility<sup>6</sup>

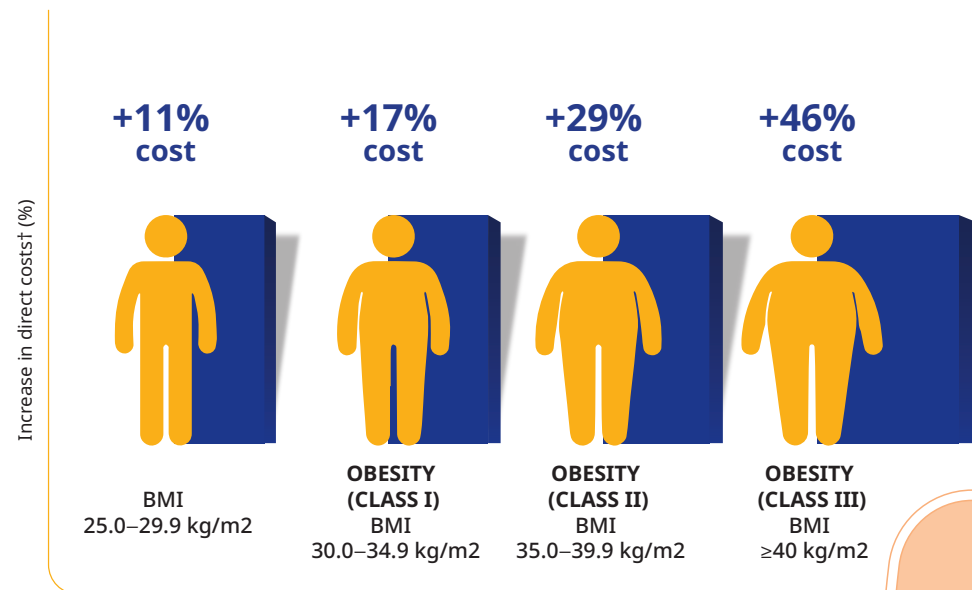
T2DM: Type 2 diabetes mellitus

References:

1. Hsu et al. Ann Intern Med 2006;144(1):21-8.
2. Kramer et al. Diabetes Care 2009;32(5):851-853.
3. Hendriks et al. BMJ Open 2018;8(1):e018859.
4. Tanaka et al. J Diabetes Complications 2016 Jul;30(5):790-7.
5. Wang et al. BMC Psychiatry 2016;16:88.
6. Foster et al. Diabetes Care 2009;32(6):1017-9.
6. Oldridge et al. J Clin Epidemiol 2001;54(9):928-34

# INCREASED WEIGHT LEADS TO INCREASED COST

In patients suffering from diabetes, when there is an increase in weight or BMI, the costs\* spent on medical care also increases:<sup>1</sup>



Increase in body weight leading to incremental direct costs in patients with T2DM<sup>1\*</sup>

\*Costs for the emergency room, inpatient, and outpatient services, plus pharmacy dispensing.  
 BMI: Body mass index; T2DM: Type 2 diabetes mellitus  
 Reference:  
 Li et al. Pharmacoeconomics 2015 Jul;33(7):735-48

# IMPACT OF EXCESS WEIGHT ON DIABETES

The association between BMI and diabetes is approximately directly linked.<sup>1</sup>

Even a **5%** weight loss helps improve<sup>2</sup>



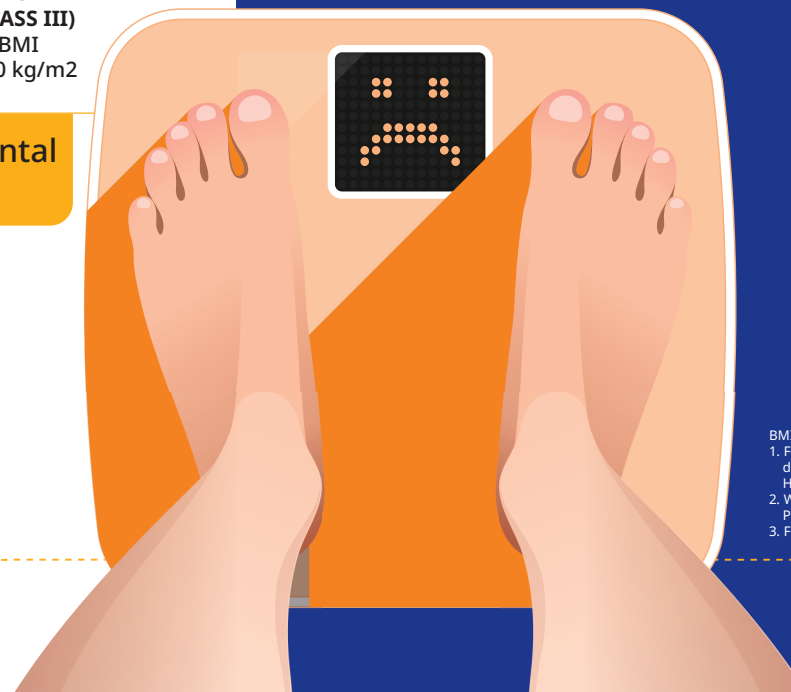
The function of the pancreas, an organ in your body that releases glucose



Sensitivity of different organs like liver and muscle to insulin



Additional weight loss and improved HbA1c levels also reduce the risk of the heart and eye diseases.<sup>3</sup>



BMI: Body mass index; HbA1c: Glycated haemoglobin  
 1. Feldman AL, Griffin SJ, Ahern AL, et al. Impact of weight maintenance and loss on diabetes risk and burden: A population-based study in 33,184 participants. BMC Public Health. 2017;17(1):170.  
 2. Wilding JP. The importance of weight management in type 2 diabetes mellitus. Int J Clin Pract. 2014;68(6):682-91.  
 3. Franz MJ. Weight management: Obesity to diabetes. Diabetes Spectr. 2017;30(3):149-53.



## Break the Partnership: Talk to your Doctor



# FOR THE NEXT APPOINTMENT WITH YOUR DOCTOR, BE SURE TO FILL THIS FORM

Complete your report and share your diabetes and weight-loss history with your healthcare provider.

### This form includes



Key life events



Current weight-loss  
efforts



Tips for talking to a  
healthcare provider

### Start the Quiz

1. When were you first diagnosed with diabetes?

---

2. What is your current weight?

3. How old are you now?

4. How tall are you?

5. How would you rate your health in general?

Poor  Fair  Good  Very good  Excellent

6. How motivated are you to lose weight from the scale of 1 - 5, 1 being the least motivated and 5 being very motivated?

7. What are you doing to manage diabetes levels and weight-loss? Select all that apply.

Physical activity  Healthy eating  Portion control  
 Over-the-counter medications  Prescription medications  Therapist and / or health coach (in-person or online)

8. Have you been diagnosed with any of the following in addition to Type II diabetes?

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Cardiovascular disease (including heart disease or stroke) | <input type="checkbox"/> High blood pressure | <input type="checkbox"/> High cholesterol |
| <input type="checkbox"/> Asthma and/or chronic obstructive pulmonary disease        | <input type="checkbox"/> Fatty liver disease | <input type="checkbox"/> Infertility      |
| <input type="checkbox"/> Polycystic ovary syndrome                                  | <input type="checkbox"/> Osteoarthritis      | <input type="checkbox"/> Depression       |
| <input type="checkbox"/> Sleep apnea (difficulty breathing while sleeping)          | <input type="checkbox"/> None                |   |

9. Is your weight currently creating challenges for you in the following areas? Select all that apply.

- |                                      |  |  |
|--------------------------------------|--|--|
| <input type="checkbox"/> Career      | <input type="checkbox"/> Physical activity | <input type="checkbox"/> Daily living  |
| <input type="checkbox"/> Family life | <input type="checkbox"/> Travel            | <input type="checkbox"/> My weight is currently not affecting me significantly in any area |

## Looking back

Certain life's events may affect your diabetes level and weight. Think about the time when your HbA1c was in control, and you were at your lowest weight.

- How old were you at that time?
- What were your HbA1c levels then?
- What was your lowest weight?
- Do you feel any of the following life events triggered a weight change? Select all that apply.

The end of an important relationship	<input type="checkbox"/>	An illness or loss	<input type="checkbox"/>
Habit change (eg. quit smoking)	<input type="checkbox"/>	A financial issue	<input type="checkbox"/>
A move to some city/country	<input type="checkbox"/>	Another significant life event	<input type="checkbox"/>
A career change HbA1c levels, and weight	<input type="checkbox"/>	I have always had issues with my	<input type="checkbox"/>
A family-related change	<input type="checkbox"/>	I don't remember	<input type="checkbox"/>
- When were you at your lowest weight? What were you doing to lose or manage your weight? Select all that apply

<input type="checkbox"/> Physical activity	<input type="checkbox"/> Portion control	<input type="checkbox"/> Prescription medications
<input type="checkbox"/> Healthy eating	<input type="checkbox"/> Over-the-counter medications	<input type="checkbox"/> Therapist and/or health coach (in-person or online)

## Did you know?

Clinical benefits of even modest weight loss of 5 – 10% includes reduced cardiovascular risk factors and improved glycemic control

## Looking into the future

Now with an idea on how your past has affected your HbA1c levels and weight. Begin to think of your future milestones that can help you to control your HbA1c levels and your weight.

- Which areas of your life do you hope to improve with management of HbA1c levels and weight? Select all that apply.

<input type="checkbox"/> Career	<input type="checkbox"/> Family life
<input type="checkbox"/> Physical activity	<input type="checkbox"/> Travel
<input type="checkbox"/> Daily living	<input type="checkbox"/> No specific area
- Which treatment options for reduction in weight and lowering HbA1c levels are you interested in exploring?

<input type="checkbox"/> Physical activity	<input type="checkbox"/> Portion control
<input type="checkbox"/> Healthy eating	<input type="checkbox"/> Over-the-counter medications

## Congratulations! You have taken the first step!

**Thank you for your answers! Great Job!**

Your answers will help in creating a long-term diabetes management plan. After form filling, you can discuss how type II diabetes and weight are challenging your health. You can also ask questions about your BMI at the end of report.

**NOTES:**

A series of 24 horizontal dashed blue lines spanning the width of the left page, providing a space for handwritten notes.

