



FOR YOUR PATIENTS WITH CVD RISK FACTORS  
**HOW LONG CAN THE OBESITY  
 CONVERSATION WAIT?**

Actor portrayals.

## The connection between obesity and cardiovascular disease

Studies show that obesity increases the risk of cardiovascular disease (CVD) and can worsen certain cardiometabolic risk factors in patients with obesity.<sup>1,2</sup>

### A case-cohort study showed

**~6x** increased risk of developing type 2 diabetes compared with patients with normal weight<sup>3</sup>

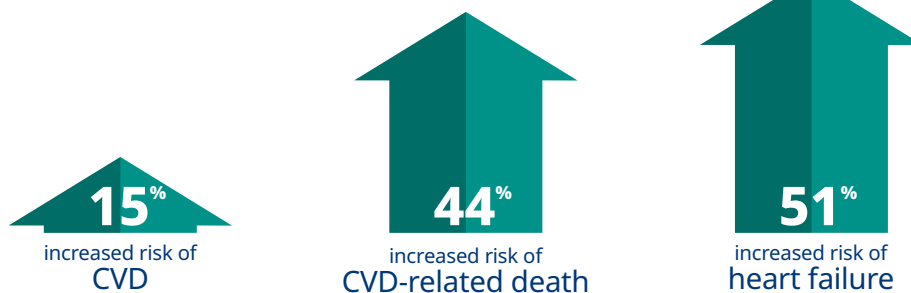
A case-cohort study conducted by the Danish Diet, Cancer and Health cohort included 4,729 individuals who developed T2D over a median of 14.7 years and a randomly selected subcohort of 5,402 individuals. The study assessed the association of genetic predisposition, obesity, and unfavorable lifestyle with the development of T2D. Genetic predisposition was quantified using a genetic risk score (GRS) based on 193 known T2D-associated loci. Body weight was categorized as normal, overweight, and obese. Lifestyle was evaluated using a score based on smoking, alcohol consumption, physical activity, and diet.<sup>3</sup>

**~60%-70%** also have dyslipidemia<sup>4</sup>

Data from the National Health and Nutrition Examination Survey (1999-2002). Dyslipidemia was defined as having  $\geq 1$  of the following: total cholesterol  $\geq 240$  mg/dL, TGs  $\geq 200$  mg/dL, LDL cholesterol  $\geq 160$  mg/dL, or HDL cholesterol  $< 40$  mg/dL. The relationship between body mass index (BMI) and the prevalence of metabolic diseases, including dyslipidemia, was analyzed.<sup>4</sup>

## Obesity can lead to cardiovascular disease comorbidities

Increased risk from overweight (mean BMI=28.7 kg/m<sup>2</sup>)  
 to Obesity Class 1 (mean BMI=33.7 kg/m<sup>2</sup>)<sup>5</sup>



**Study Design:** Population-based cohort study utilized data from the UK Clinical Practice Research Datalink (CPRD), a national representative database of routinely recorded primary care electronic health records. The study included 264,230 individuals aged  $\geq 18$  years with no preexisting records of CVD and with a recorded or computed BMI of  $\geq 25$  kg/m<sup>2</sup>. Participants were followed for a median duration of 10.9 years. The data were adjusted for age, sex, and comorbidities. Four distinct BMI trajectories were identified, with the Obesity Class 1 group having a mean baseline BMI of 33.7 kg/m<sup>2</sup>.<sup>5</sup>

**Obesity is associated with at least 60 comorbidities.**<sup>6-9</sup>

Visit [RethinkObesity.com](https://RethinkObesity.com) to learn more.



BMI, body mass index; HDL, high-density lipoprotein; LDL, low-density lipoprotein; T2D, type 2 diabetes; TG, triglyceride.



# Obesity-related CVD deaths are on the rise



Obesity-related  
cardiovascular  
deaths\*

increased

3x

between 1999 and 2020<sup>10</sup>

- Minority groups were affected even more: The age-adjusted cardiovascular death rate for Black Americans was approximately 75% higher than the national average<sup>10</sup>
- A CDC analysis of combined data from 2015-2017 showed that the prevalence of people living with obesity included approximately<sup>11</sup>:
  - 38% of non-Hispanic Black adults
  - 33% of Hispanic adults
  - 29% of non-Hispanic White adults

\*Based on an analysis of the Multiple Cause of Death database in the United States. Age-adjusted mortality rates were compared across 281,135 cardiovascular disease-related deaths with obesity recorded as a contributing cause of death occurring in adults (>15 years of age) in the US between 1999 and 2020. Cardiovascular deaths were categorized by ischemic heart disease, heart failure, hypertensive disease, cerebrovascular disease, and other.<sup>10</sup>

## How can obesity contribute to the risk of CVD?

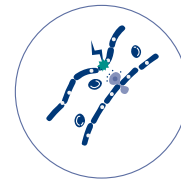
Obesity can lead to enlarged adipose tissue cells (adipocytes), which promote low-grade systemic inflammation. This can contribute to<sup>12-15</sup>:



Vascular  
breakdown



Structural and functional  
myocardial damage



Endothelial  
dysfunction

**It's time to make weight management a priority**

CDC, Centers for Disease Control and Prevention; CVD, cardiovascular disease.

**References:** 1. Thomsen M, et al. *JAMA Intern Med.* 2014;174:15-22. 2. Powell-Wiley TM, et al. *Circulation.* 2021;143(21):e984-e1010. 3. Schnurr TM, et al. *Diabetologia.* 2020;63(7):1324-1332. 4. Bays HE, et al. *J Clin Lipidol.* 2013;7(4):304-383. 5. Iyen B, et al. *BMC Public Health.* 2021;21(1):576. 6. Garvey WT, et al. *Endocr Pract.* 2016;22(suppl 3):1-203. 7. Centers for Disease Control and Prevention. Obesity and cancer. Published November 7, 2023. Accessed July 24, 2024. <https://www.cdc.gov/cancer/risk-factors/obesity.html> 8. Ryan DH, et al. *Curr Obes Rep.* 2017;6(2):187-194. 9. Tondt J, et al. Obesity Medicine Association. January 2024. Accessed July 24, 2024. <https://obesitymedicine.org/resources/obesity-algorithm/> 10. Raisi-Estabragh Z, et al. *J Am Heart Assoc.* 2023;12(18):e028409. 11. Petersen R, et al. *Prev Chronic Dis.* 2019;16:E46. 12. Heymsfield SB, et al. *N Engl J Med.* 2017;376(3):254-266. 13. Cercato C, et al. *Diabetol Metab Syndr.* 2019;11:74. 14. Cohen JB. *Curr Cardiol Rep.* 2017;19(10):98. 15. Csige I, et al. *J Diabetes Res.* 2018;2018:3407306.



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