

Fadel et al., 2025; Ilias et al., 2025). Enables GLP-1 RAs to form synergistic effects at the levels of central regulation, gastrointestinal motility regulation and metabolic regulation, supporting its application advantages in weight management and long-term prognosis improvement in diabetes mellitus complicated with obesity.

5 Clinical Evidence: Impact on Weight Control

5.1 Relationship between weight loss and dosage as well as treatment duration

Many clinical studies have shown that glucagon-like peptide-1 receptor agonists (GLP-1 RAs) can significantly reduce the weight of patients with diabetes complicated with obesity. The more obvious the weight loss effect is usually associated with a larger dosage and a longer treatment duration (Figure 2) (Liu et al., 2023; Hamed et al., 2024). When using drugs for a long time, the weight loss effect of high-dose drugs such as semaglutide and ciceptide is more prominent. After more than one year of treatment, the average body weight decreased by approximately 13.9% and 17.8% respectively compared to the beginning (Xie et al., 2024; Moiz et al., 2025). Other studies have also observed similar situations, especially in patients who were initially overweight or had a longer medication duration, with more significant effects (Wong et al., 2025).

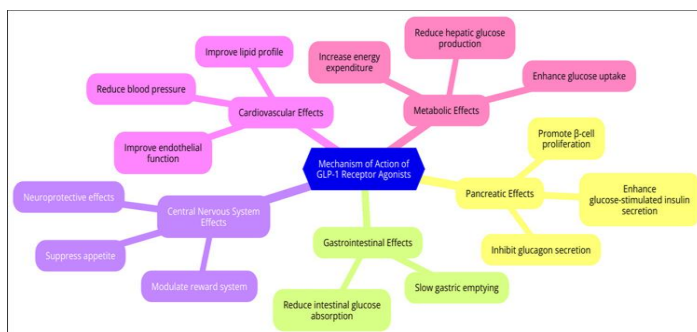


Figure 2 Mechanism of action of GLP-1-RAs (Adopted from Hamed et al., 2024)

The weight loss brought by GLP-1 RAs is not only significant in value, but mostly exceeds the 5% weight loss standard required for metabolic and cardiovascular benefits, and its practical application is clear (Yao et al., 2024). Although many GLP-1 drugs can help with weight loss, on the whole, the effects of drugs such as semaglutide and tipatide may be better than those of illaglutide and exenatide (Liu et al., 2023; Zhang et al., 2025). Overall, this type of drug has good tolerance, and the main side effect is gastrointestinal discomfort (Iqbal et al., 2022; Wong et al., 2025).

5.2 Advantages over traditional hypoglycemic regimens

Compared with traditional hypoglycemic methods, GLP-1 RAs has obvious advantages in controlling body weight and improving body shape (Yao et al., 2024). Meta-analysis and direct comparative studies have found that such drugs can significantly reduce body weight, waist circumference, and body mass index (BMI) associated with cardiometabolic risk (Xie et al., 2024). Studies have shown that the average waist circumference can be reduced by 4 to 17 centimeters. The higher the initial BMI or the longer the treatment duration, the more obvious the improvement (Liu et al., 2023; Wong et al., 2025).

The above advantages are simultaneously reflected in blood glucose control and lipid profile improvement, differentiating GLP-1 RAs from the hyperglycemic hypoglycemic regimen in terms of overall metabolic benefits (Hamed et al., 2024). When weight management becomes the focus of treatment, this type of drug is often regarded as one of the important treatment options for patients with type 2 diabetes mellitus complicated with obesity. Existing studies support its use as a component of basic treatment to simultaneously improve metabolic indicators and body type-related outcomes (Yao et al., 2024; Wong et al., 2025).

5.3 Issues of weight maintenance and rebound after drug withdrawal

Although GLP-1 drugs can help patients lose weight effectively during the treatment period, maintaining weight in the long term still faces challenges, especially after drug withdrawal. Several studies have shown that the weight of most patients will rebound to varying degrees after drug withdrawal, and the extent of rebound is