

Science Note 3: Are GLP-1s Treating the Root Cause or Just the Symptoms?

THE BOTTOM LINE

The Bottom Line: Whether GLP-1 medications are treating a root cause or a symptom depends on the condition being treated. In Type 2 diabetes, they target several of the biological processes that drive the disease itself. In obesity, the answer is less clear because researchers still do not fully understand why obesity develops in the first place. What the evidence does suggest is that GLP-1 medications influence multiple pathways involved in appetite, satiety, metabolism and weight regulation, making them more than simple appetite suppressants, but not necessarily a complete solution to the underlying causes of obesity.

Some clinicians and researchers describe GLP-1 receptor agonists as "metabolic restoration medications" because they improve several aspects of metabolic health simultaneously. From this perspective, poor metabolic health underlies many of the chronic diseases associated with modern ageing, and therapies that improve metabolic function may be addressing important upstream drivers of disease⁸.

Whether GLP-1 medications are treating a root cause or a symptom, however, depends partly on which condition is being treated.

Type 2 Diabetes

Type 2 diabetes is characterised by insulin resistance, impaired insulin secretion and inappropriate glucagon release.³

GLP-1 receptor agonists improve glycaemic control through multiple mechanisms including:

- glucose-dependent stimulation of insulin secretion,

- suppression of glucagon secretion,
- delayed gastric emptying,
- reduced food intake and body weight.

Because these actions directly target recognised physiological abnormalities involved in Type 2 Diabetes, GLP-1 medications can reasonably be viewed as addressing aspects of the disease process rather than simply masking elevated blood glucose.³ However, they do not necessarily remove all contributors to insulin resistance, such as physical inactivity, sleep disruption, chronic overnutrition or genetic susceptibility. For this reason, GLP-1 therapy is generally considered one component of long-term disease management rather than a cure.

Obesity

Whether or not GLP-1 medications treat the root cause of obesity is far more controversial.

Historically, obesity was often viewed as the result of excessive calorie intake and insufficient physical activity. Under this model, appetite suppression could be interpreted as symptom management.

Contemporary obesity researchers increasingly describe obesity as a chronic disease involving dysregulation of appetite, satiety, reward processing, energy expenditure and neuroendocrine signalling.^{1,4,6,7}

Within this framework, excessive hunger and reduced satiety are not merely symptoms, but components of the disease itself. GLP-1 receptor agonists may therefore be modifying biological processes that contribute directly to weight gain and weight regain.

The challenge is that the underlying causes of obesity remain incompletely understood. Researchers continue to debate the relative importance of genetics, environment, food availability, insulin signalling, reward pathways, gut hormones, inflammation and body weight set-point regulation.

Because no single mechanism has been shown to explain obesity in all individuals, identifying a single "root cause" remains challenging.

Some researchers, including Ben Bikman, have argued that chronic hyperinsulinaemia and insulin resistance may sit closer to the root of obesity than excess body fat itself. In this view, elevated insulin levels promote energy storage and may contribute to weight gain, making obesity partly a consequence of underlying metabolic dysfunction rather than its primary cause.² This remains an active area of scientific debate and is not universally accepted as the sole explanation for obesity.

Furthermore, even the precise mechanisms by which GLP-1 receptor agonists produce substantial weight loss are not yet fully resolved.⁵ Their effects extend beyond delayed gastric emptying and appetite suppression to include actions within multiple brain regions involved in feeding behaviour and reward.³

Consequently, it may be more accurate to state that GLP-1 medications target several recognised biological pathways involved in obesity, rather than claiming they definitively treat the singular root cause of obesity.

A practical perspective

The distinction becomes particularly important when considering individuals who are overweight, but otherwise metabolically healthy.

For people with obesity-related disease, Type 2 diabetes or significant metabolic dysfunction, the benefits of GLP-1 therapy may clearly outweigh the risks.

For individuals seeking to lose a relatively small amount of weight primarily for cosmetic reasons, the risk-benefit calculation becomes less straightforward because the disease process being treated is less clearly defined.

As with many areas of obesity science, the answer depends partly on how obesity itself is defined. If obesity is fundamentally a disorder of appetite regulation, energy balance and metabolic signalling, then GLP-1 medications may be addressing important elements of the disease process. If obesity has multiple causes that vary between individuals, then GLP-1s may be targeting one pathway among many.

At present, the science supports the latter interpretation more strongly than the former.

References

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