

## **Specialized Nutritional Formulations as a Leading Therapy to Support the Effective Use of GLP-1RAs**

The use of GLP-1RAs has been reported to have a number of side effects, including loss of muscle mass (range of 15 to 40% loss) and digestive discomfort issues (15% of users) along with nutrient deficiencies (10% of users) (Sodhi, 2023; Lisco, 2024; Troup, 2024). All these issues are interrelated with an underlying cause of poor diet and nutrient availability, which can accelerate and complicate each issue.

### **Sarcopenia risk**

Loss of muscle mass in particular is a concern since involuntary muscle loss may already be taking place in these consumers, who could have sarcopenic obesity, loss of muscle resulting from the normal aging process (3 to 5% per year), or a result of elevated underlying inflammation, which may accelerate muscle loss in various conditions and in various chronic disease states. The use of GLP-1RAs could then accelerate the rate of loss in these individuals. Recent publications confirm where this is possible, with up to 40% loss of muscle over the course of use of these medications has been reported (Lisco, 2024). Much of this results from inadequate dietary sources of protein, which should help avoid muscle loss by maintaining the high anabolic rates required to avoid or minimize muscle loss.

### **Specialized clinical nutrition**

To address this underlying issue and need, specialized clinical nutrition formulas have been developed to minimize and avoid muscle loss. The usual intake of diet-based protein is most typically provided at a level of 0.8g/kg body weight and a range of 60 to 80 g of protein per day (USDA 2020 – 2025 Dietary Guidelines). Recent clinical science research has suggested that protein requirements that meet the metabolic needs of muscle-building capacity (i.e., protein synthesis rates) should be between 1.2 and 1.8g/kg body weight (Sodhi, 2023; Wolfe 2010). In certain conditions and with the use in high-risk sarcopenic patients using GLP-1RAs, this requirement could be as high as 2.0g/kg body weight.

While the above helps define the total amount of protein required, due to the effects of insulin resistance and catabolic imbalance of muscle metabolism leading to muscle mass loss, the activation of protein synthesis is achieved only by high levels of essential amino acids supported by higher levels of branched-chain amino acids, especially leucine. Without this specific profile available in the protein source and supplementation formula (as seen in dietary protein sources), the effective activation of protein synthesis could be missing, and the rate of sarcopenia resulting could be higher.

Effective protein blends should contribute > 40% of calories in a high essential amino acid profile source through a combination of whey protein isolate and whey protein concentrate. Additionally, leucine should be available at higher levels (> 2g) per serving, which serves as an important activator of muscle-building capacity.

### Clinical research

Figure 1 illustrates that when this profile of protein is provided, not only are higher rates of protein synthesis achieved during the use of GLP-1RAs, but the effects of use over 12 weeks have significant results and can improve muscle mass status versus when GLP-1RAs are used without specialized protein medical foods (Figure 2).

In addition to the effects of protein on muscle mass, the formulation of **Protect & Restore** includes specialized slow-release carbohydrates that result in lower levels of blood glucose, and in combination with the activation effect of protein and leucine, stimulate GLP-1 itself such that early spikes in insulin release are seen further supporting long-term and lower blood glucose levels. These specific effects support protein synthesis and thereby reduce the risk of loss of muscle mass).

Figure 1

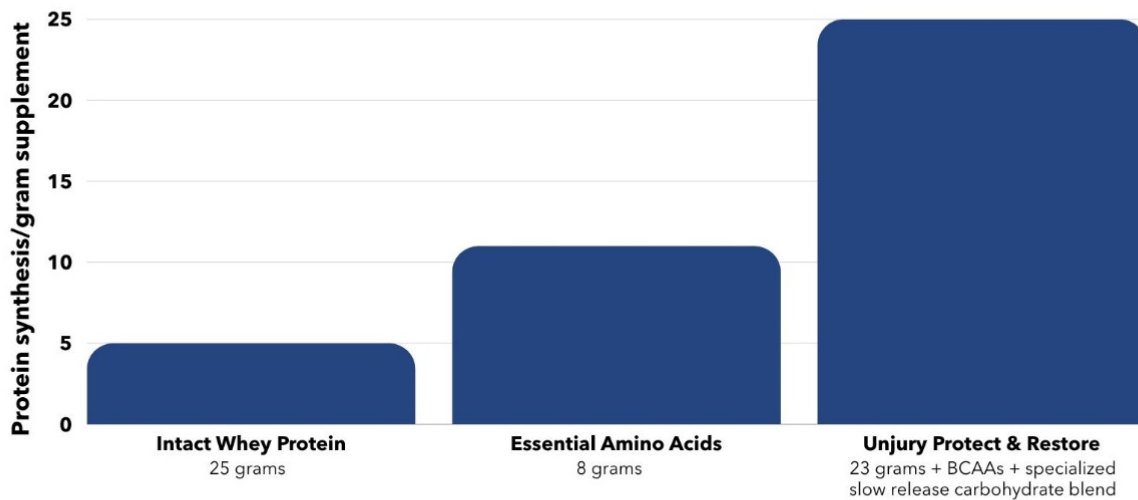
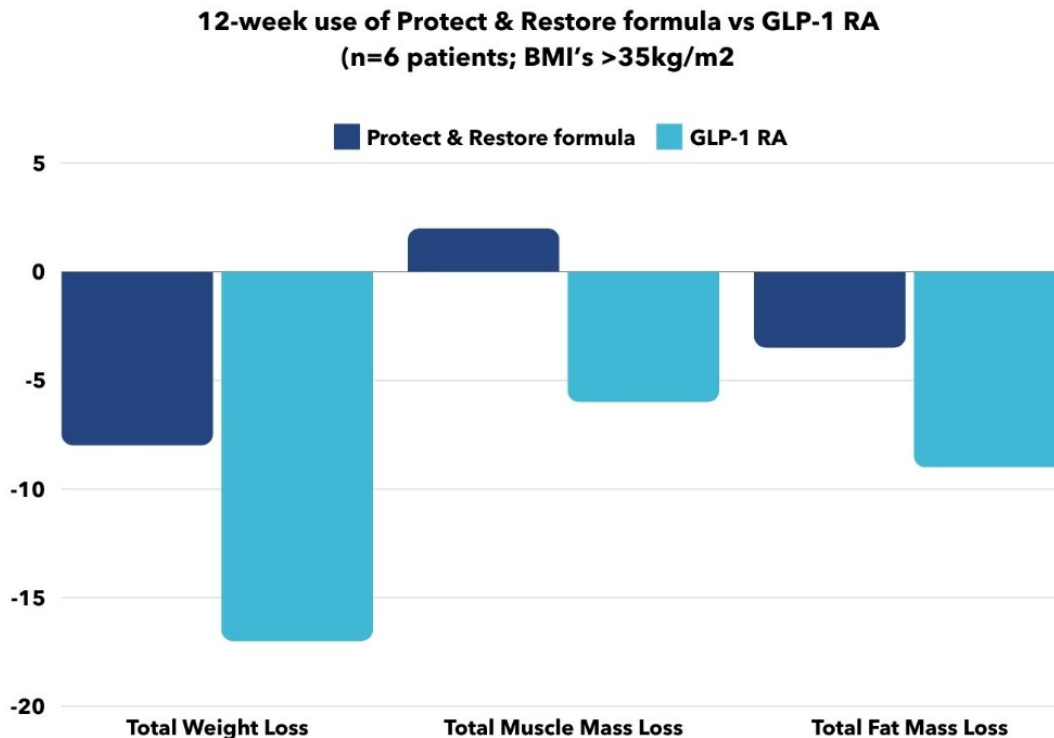


Figure 2



## Summary

Clinical results in 12 weeks show improvement in the health profile and status of patients using GLP-1RAs. **Protect & Restore** provides important clinical support in the maintenance of muscle and the management of potential loss of muscle mass as observed with the use of GLP-1RAs. This difference is a result of:

- High total amount of high-quality protein as a source of calories at meal occasions and as a supplement during the day (> 40% of calories helping to achieve > 1.5g/kg body weight/day).
- High levels of essential amino acids which are not easily achievable through food sources and traditional meal replacements.
- High levels of leucine and branched-chain amino acids, which are not possible in typical meal occasions, especially with reduced appetite.
- Improved activation and stimulation of protein synthesis.

- Slow-release carbohydrates and dietary fiber, which improve the ability to maintain healthy digestive function.
- Improved blood glucose response, with the protein available, resulting in early and balanced GLP-1 activation and early insulin spikes, reducing insulin resistance, and increasing muscle mass.

**References:**

1. Paniagua JA et al. *J Am Coll Nutr.* 2007;26(5):434-444.
2. Troup JP, Kosciński M. *ASMBS Annual Meeting Abstract.* 2024.
3. Coker RH et al. *Clin Nutr.* 2019;38(6):2821-2826.
4. Wolfe RR. *J Int Soc Sports Nutr.* 2017;14:30.
5. Centers for Disease Control and Prevention. Adult Obesity Facts. <https://www.cdc.gov/obesity/data/adult.html>. Accessed April 10, 2024.
6. Ozempic Prescription Medical Product Insert. Novo Nordisk 2023. <https://www.ozempic.com/prescribing-information.html>. Accessed April 10, 2024.

**CLINICAL ALGORITHM**

**Management of sarcopenia risk with use of GLP-1 RAs**

