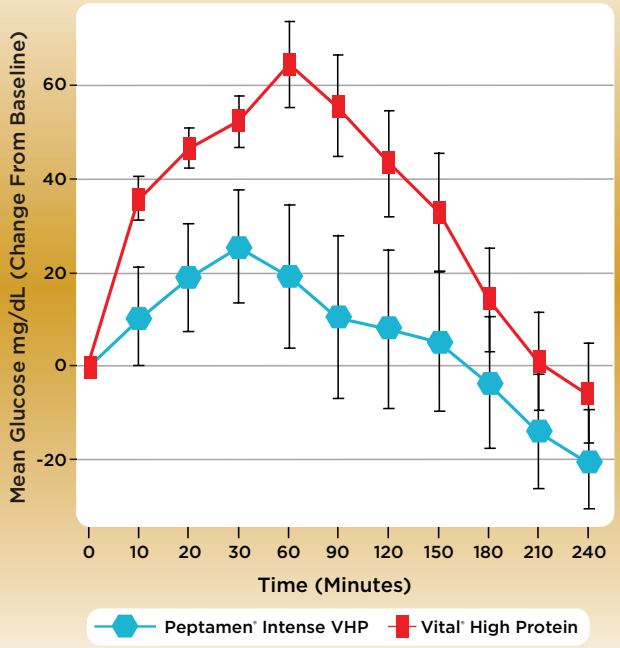
Peptamen® Intense VHP Formula

Research supports that Peptamen® Intense VHP provides better control of postprandial blood glucose (BG), compared to Vital® High Protein.

Mean Glucose Change From Baseline Levels by Time of Sampling and Product



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	Peptamen® Intense VHP Very high-protein tube feeding. Enzymatically hydrolyzed 100% whey protein.	**Vital® High Protein** High protein, low fat therapeutic nutrition. Hydrolyzed, peptide-based protein system made with whey-casein.
Significant increase in BG levels within 10 minutes of infusion		✓
Difference in BG levels remain significantly higher at 180 minutes		✓
Lower peak BG levels	✓	
Faster return to baseline BG levels	✓	
Clinical trend toward lower endogenous insulin production (as measured by serum insulin)	✓	

Sustaining more normal blood glucose levels is associated with decreased microvascular complications. Dietary control of blood glucose may result in decreased need for anti-diabetic medication, thereby potentially decreasing nursing time for patient care, including treatment for episodes of hypoglycemia.[2-5]

Ask your Nestlé Sales Representative for further information on the relationship between very high-protein, low-carbohydrate enteral nutrition and blood glucose management.

USE UNDER MEDICAL SUPERVISION.

References: 1. Huhmann, et al. *Nutrition and Diabetes* (2018)8:45 DOI 10.1038/s41387-018-0053-x
2. Shogbon A, Levy S. *Am J Health-Sys Pharm* 2010;67:798-805. **3.** Rice TW, et al. *JPEN* 2019;43(4):471-480.
4. Finfer, et al. *N Engl J Med* 2009;360;13. **5.** Malesker, et al. *American Journal of Critical Care* 2007;16:589-598.

STUDY SUMMARY

High Protein, Low Carbohydrate, 100% Whey Based Enteral Formula is Associated with Lower Blood Glucose Response.

Huhmann MB*, Yamamoto S, Neutel J, Cohen S, Ochoa JB.*

Nutrition and Diabetes, 2018;8:45. DOI 10.1038/s41387-018-0053-x.

Objectives:

The purpose of this study was to demonstrate that an enteral nutrition (EN) formula containing a very high-protein, low carbohydrate macronutrient profile provides better control of postprandial blood glucose (BG) as compared to an EN containing a very high-protein, higher-carbohydrate macronutrient profile.

Background:

Hyperglycemia is prevalent among critically ill patients and is associated with poor outcomes. Tight BG control with intensive insulin therapy is associated with improved outcomes, but risk of hypoglycemia with intensive insulin therapy precludes benefit.

Use of EN formula with very high amounts of whey peptides, MCT and low-carbohydrate content to increase endogenous release of insulin and increase insulin sensitivity appears promising in the effort to achieve tight BG control without the detrimental effects of hypoglycemia.

Materials and Methods:

This was a single-blinded, randomized, cross-over clinical trial of 12 adults with Type 2, non-insulin dependent Diabetes Mellitus (T2D) representing individuals with BG dysregulation and with the goal of measuring glycemia and insulin response after ingestion of an isocaloric amount of two EN formulas.

During the first visit to the clinic, subjects were randomized to receive Peptamen® Intense VHP (37% hydrolyzed whey protein, 29% carbohydrate) as the experimental formula or Vital® High Protein (35% whey peptides and intact casein, 45% carbohydrate) as the control formula.

After a washout period of 3-7 days, subjects received the formula not provided during their first visit. Each formula was given at room temperature and 450 mL infused enterally via a 60 mL syringe, through a nasogastric feeding tube over a 30-minute period. All subjects had a baseline Hemoglobin A1C < 9.0% and fasting BG < 180 mg/dL. Subjects were excluded if medications included long-acting products such as sulfonylureas, meglitinides, alpha-glucosidases and insulin, to avoid risk of hypoglycemia

Results:

Twelve subjects, mean age of 56±7.5 years, six female and six male, completed the trial. Mean BMI was 35.5±5.5. Mean BG was comparable at baseline for both groups. Other findings were as follows:

- There was a significant increase in BG levels within 10 minutes in the control group (Vital® High Protein) after infusion of EN ($p<0.005$).
- At 60 minutes (peak), the between-group difference in change from baseline in mean glucose was 45.2 mg/dL (2.5 mmol/L); $p=0.003$.
- Significant difference in BG between groups was noted up to 180 minutes after EN infusion ($p<0.05$).
- The maximum increase in blood sugar was lowest for the experimental (Peptamen® Intense VHP) group.
- There was a clinical trend towards lower endogenous insulin production in the Peptamen® Intense VHP group.

Discussion:

Metabolic response can be significantly controlled by enteral formulas. Per the NICE sugar trial, 69-97% of critically ill patients were hyperglycemic. Using exogenous insulin to attempt to achieve tight BG control is complex, increasing nursing time for patient care and often leading to episodes of hypoglycemia.

Metabolic regulation of BG through appropriate EN, with less emphasis on calorie goals and more emphasis on protein goals is emerging and is consistent with overall contemporary nutritional goals in the ICU.

Conclusions:

This study demonstrates that the differences in EN macronutrient composition can exert a significant metabolic effect on patients in terms of BG control, with a clinical trend towards reduced endogenous insulin release and a significant improvement in BG control in those subjects who receive Peptamen® Intense VHP (37% hydrolyzed whey protein and 29% carbohydrate).

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