





# **Pulmonary Diseases & Malnutrition:**

- Malnutrition and its associated adverse pulmonary effects can directly affect outcomes in the individual with pulmonary disease.
- Significant relationship between Pulmonary diseases and Nutrition.
- Recent nutrition surveys in hospitals continue to suggest that 40–50% of patients, particularly those in the intensive care unit, have a moderate degree of malnutrition.
- Nutritional support is essential for mechanically ventilated patients to meet their energy requirements

# Role of Ketogenic Diet in Pulmonary Care

Asthma COPD Pulmonary discomforts



Inflammation Bronchoconstriction Airway obstruction



Regular Diet

High carbon dioxide production can precipitate acute respiratory failure in patients with chronic pulmonary disease and can complicate weaning in ventilator dependent patients & More energy required for Respiration



Difficult to eliminate CO<sub>2</sub> due to pathogenesis, Secondary due to diet: High Carbohydrates leads to more production of CO<sub>2</sub>: Hypercapnia



Controlled Protein: Refines the Respiratory Quotient (RQ) & lowers the CO<sub>2</sub> production leads to improve breathing efficiency



Helps to Reduce Hypercapnia
Due to Ketogenic Diet

# Features of Lamino Respi

Ketogenic Diet: High Fat, Low Carbohydrate & Controlled Protein

Calorific Distribution		bution
FAT	CARBOHYDRATE	PROTEIN
47.07%	35.69%	17.20%

- Improves Respiratory Quotient
- Anti-Inflammatory: N-Acetyl Cysteine, Zinc, Vitamin C, E & D
- · Reducing Oxidative Stress: Vitamin A, C, E & Zinc
- 27 Essential Vitamins & Minerals
- Strengthens Respiratory Muscles
- Improve Patient compliance-Strawberry Flavor
- Gluten Free

# Clinical Evidence:

Impact of high fat low carbohydrate enteral feeding on weaning from mechanical ventilation with type II respiratory failure Patients.

# Background:

To compare the effect of a high fat, low carbohydrate enteral feeding to a standard iso-caloric enteral feeding on arterial carbon dioxide tension and ventilation time in patients with type II respiratory failure secondary to pulmonary disease requiring mechanical ventilation

#### Method:

One hundred patients with type II respiratory failure secondary to pulmonary disease requiring mechanical ventilation who could be enterally fed in the respiratory intensive care unit of Ain Shams University Hospitals were enrolled in this study. They were divided randomly into:

Group A: included fifty patients who received standard iso-caloric feeding with carbohydrates (53.3%), fats (30%) and proteins (16.7%).

*Group B:* included fifty patients who received iso-caloric high fat low carbohydrate feeding with carbohydrates (28.1%), fats (55.2%) and proteins (16.7%) also through the Ryle tube.

#### Results:

Group B had 16% decrease in arterial carbon dioxide tension, 8% decrease in the minute volume at weaning, and spent on average 62 h less on mechanical ventilation.

### Conclusion

A nutritional regimen with a high fat content may reduce ventilatory requirements and therefore reduce the duration of mechanical ventilation.



# Description:

**LAMINO RESPI** is designed with appropriate composition of fat, Carbohydrate and adequate Protein which helps to improve breathing efficiency & provide proper level of energy for respiration.

### Components:

- High Fat, Low Carbohydrate & Controlled Protein
- N-Acetyl Cysteine
- Vitamins
- Minerals
- Amino Acids
- Antioxidants

#### Mechanism:

- By increasing the proportion of fats, the respiratory quotient is driven down, causing a relative decrease in the amount of CO<sub>2</sub> produced. This reduces the respiratory burden to eliminate CO<sub>2</sub>, thereby reducing the amount of energy spent on respirations.
- Vitamin A, C, E & Zinc helps in reducing oxidative stress.

# Helpful In:

- Cystic Fibrosis
- Asthma
- COPD
- Respiratory discomforts
- ICU patients with mechanical ventilation
- Malnutrition
- Respiratory failure

### Dosage & Administration:

Add 2 heaped scoop (Approx. 30 gm) in 100 ml Luke warm milk/ water once a day or as suggested by Healthcare professional. Upon reconstitution stir well and use promptly.

## Storage:

Store in cool, dry and dark place, away from direct sunlight. Close Lid tightly after each use.

#### Presentation:

LAMINO RESPI is available as powder form in 200 gm tin packed in monobox.

#### La Renon Healthcare Pvt. Ltd.

