

primary studies - published RCT

## Comparison of low, medium, and high carbohydrate formulas for nighttime enteral feedings in cystic fibrosis patients.

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### Study design (if review, criteria of inclusion for studies)

RCT crossover

### Participants

10 young adult cystic fibrosis patients with moderate to advanced lung disease, age 17 to 24 (mean 21.4 years). 8 patients had severe, and two moderate obstructive pulmonary disease; 9 used nighttime oxygen therapy.

### Interventions

1000 kcal/M2 of a low (Pulmocare), medium (Ensure Plus), and high (Vivonex HN) carbohydrate formula in random order

### Outcome measures

Basal energy expenditure (BEE), indirect calorimetry. VO<sub>2</sub>, VCO<sub>2</sub>, VCO<sub>2</sub>/VO<sub>2</sub>, minute ventilation, Transcutaneous oxygen saturation

### Main results

Basal energy expenditure (BEE) without feedings averaged 120% of that predicted by the Harris-Benedict equation. The metabolic expenditure by indirect calorimetry during nighttime feedings was 25 to 36% greater than the BEE. Oxygen consumption (VO<sub>2</sub>) increased 21 to 27% during nighttime feedings with no difference between formulas. VCO<sub>2</sub> increased 29% for Pulmocare, 46% with Ensure Plus, and 53% with Vivonex HN. The increase in VCO<sub>2</sub> with Pulmocare was significantly less than Ensure Plus (*p* less than 0.05) and Vivonex HN (*p* less than 0.005). The respiratory quotient (RQ) (VCO<sub>2</sub>/VO<sub>2</sub>) for Pulmocare (0.88) was the same as the BEE, but increased with Ensure Plus (1.00), and Vivonex HN (1.08). The 41% increase in minute ventilation with Vivonex HN was greater than the 25 to 28% increase observed for Pulmocare and Ensure Plus (*p* less than 0.05). Transcutaneous oxygen saturation fell no more than 2% with all formulas. PCO<sub>2</sub> changed +/- 5 torr during enteral feedings with similar changes in any patient with all formulas.

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### See also

JPEN J Parenter Enteral Nutr. 1990 Jan-Feb;14(1):47-52.

### Keywords

Adolescent; Adult; Carbohydrates; Enteral Nutrition; Food; non pharmacological intervention - devices OR physiotherapy; non pharmacological intervention - diet; Supplementation; Chest physiotherapy;