

Indirect Calorimetry

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Indication nutritional screening:

Expected intensive stay > 48 hours

Exclude contraindications of indirect calorimetry:

- O_2 concentration > 70%
- PEEP > 14 cmH₂O
- Severe arterial hypoxaemia (PaO₂ < 50 mmHg)
- ECMO
- Broncho-pleural or tracheoesophageal fistula
- Leakage > 10
- Therapy with nitric oxide
- Sedation with volatile anaesthetics

Contraindications excluded?

NO

YES

Estimate resting energy index:

- **BMI < 30:**
24 kcal per kg current bw/die
- **BMI ≥ 30-50:**
14 kcal per kg current bw/die
- **BMI > 50:**
25 kcal per kg idealised KG/die
(48.4 + 77.0) x (height in m - 1.50 m)

Prepare monitoring by indirect calorimetry
(e.g. calibrate sensors)

Determine the time for implementation:

- Last renal replacement therapy ended > 4 hours ago
- Last change of ventilation mode > 90 minutes ago
- Last adjustment of inspiratory O_2 concentration (e.g. during suctioning) > 30 minutes
- Last mobilisation from bed > 30 minutes

Perform indirect calorimetry
for > 30 minutes

Respiratory
Quotient (RQ) above 1.3
and below 0.67?

YES

Measured values implausible
(e.g. measurement error)

$\Delta\text{-VO}_2$ & $\Delta\text{-VCO}_2$
under 10%?

NO

NO

YES

Evaluate
results

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