Integrating advanced nutritional assessment into perioperative prehabilitation: a pragmatic implementation study in major oncologic surgery
IN-PACT Study

SINPE
Società Italiana di Nutrizione Artificiale e Metabolismo

Sara Miori, Giuseppe Pasolini, Carlo Pedrolli, Silvia De Rosa
Silvia De Rosa (Prof. Silvia De Rosa, CISMed - Centro Interdipartimentale di Scienze Mediche, University of Trento – silvia.derosa@unitn.it)

Rationale

- Need for **accurate and dynamic** assessment of metabolic status in at-risk patients
- **Limitations** of current **predictive equations** for estimating **energy needs**
- Importance of **integrating energy expenditure (indirect calorimetry)** and **body composition (BIVA)**
- Potential to improve **precision and effectiveness of nutritional interventions**

Panel B: Objectives and scope

PRIMARY OBJECTIVE

Evaluate the impact of **integrating indirect calorimetry, BIVA, and body composition analysis on nutritional decision-making in major abdominal oncologic surgery**

SECONDARY OBJECTIVES

1. Assess the **relationship** between energy expenditure and **body composition**
2. Evaluate the impact of **nutritional intake** on **muscle status** and **hydration**
3. Determine changes over time during **hospitalization** or **nutritional support**
4. Support the development of **personalized** nutritional strategies

SCOPE

- Prospective study in a **defined clinical population**
- Repeated measurements with standardized **protocols**
- Data collection of metabolic, body composition, and nutritional intake parameters
- Feasibility assessment for future **clinical implementation**

Description of the Initiative	Background / Context	Key Activities	Deliverables & Outcomes
✓ **Integrated assessment of metabolic status** and **body composition** using indirect calorimetry and BIVA	✓ Malnutrition and muscle wasting prevalent in critically ill patients	✓ Development and validation of study protocol	✓ **Publications in peer-reviewed scientific journals**
✓ Advanced and objective evaluation	✓ Strongly associated with **poor clinical outcomes**	✓ **Implementation of indirect calorimetry** and BIVA measurements	✓ Presentations at national and international conferences
✓ Combination of complementary tools	✓ Current methods for estimating energy needs are often inaccurate	✓ **Patient recruitment** and data collection in clinical settings.	✓ The proposed approach is **expected to improve** patient outcomes through more accurate and individualized nutritional interventions
✓ Focus on clinically relevant parameters	✓ Need for more precise and individualized assessment tools	✓ **Integration and analysis** of metabolic and body composition data	
✓ **This project directly** supports the **implementation** of structured nutritional care pathways in clinical practice.		✓ **By optimizing nutritional assessment,** the project has the potential to reduce complications and improve resource utilization	

This study supports the development of a precision nutrition stewardship approach integrating indirect calorimetry and body composition to guide clinical decision-making.

Timeline

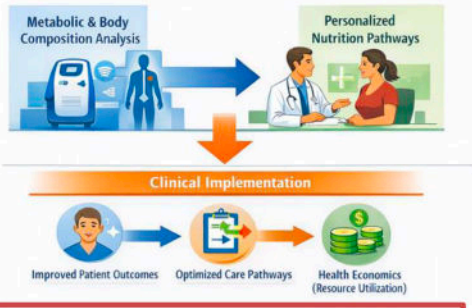


Expected Achievements

Key Success Factors

Precision nutrition stewardship for perioperative care





This project bridges advanced metabolic assessment with real-world clinical application, enabling a scalable and patient-centered model for precision nutrition at the point of care.

Resources	Details
Personnel	The project is supported by an experienced multidisciplinary team (clinicians and researchers), contributing as in-kind support without additional cost to the grant.
Financial Resources	The €40,000 grant will support key project components, including equipment and operational costs.
Budget Allocation	Indirect calorimetry (€20,000); BIVA (€8,000); Consumables (€8,000); Software (€2,000); Dissemination (€2,000).
Other Funding	No additional funding currently secured. Potential complementary funding may be explored to expand project impact.

Area	Expected Outcomes & Impact
Implementation of Findings	Integration of indirect calorimetry and BIVA into clinical workflows to support objective and personalized nutritional assessment.
Advancement of Clinical Nutrition	Demonstration of effective, data-driven nutritional strategies and implementation of structured clinical nutrition pathways.
Patient Outcomes	Improved assessment of metabolic needs and body composition, supporting better clinical outcomes and recovery trajectories.
Clinical Practice Innovation	Development of practical strategies to enhance precision nutrition in routine care.
Health Economic Impact	Potential optimization of resource utilization through more accurate nutritional interventions and reduced complications.
Education & Knowledge Transfer	Training opportunities for healthcare professionals and dissemination of best practices in nutritional care.
Transferability	The proposed approach is scalable and transferable to different clinical settings and geographical regions due to its standardized and reproducible methodology.

☒ **Please tick to confirm the PEN letter of endorsement is attached. Incomplete submissions will not be considered.**

mni medical nutrition international industry