

# The Impact of Preoperative Immune Modulating Nutrition on Outcomes in Patients Undergoing Surgery for Gastrointestinal Cancer

Adiamah A, Skořepa P, Weimann A and Lobo DN. *Ann Surg* 2019; 270(2): 247-256.

### Objective:

To systematically review the preoperative use of immunonutrition (containing all combinations of arginine, glutamine, n-3 fatty acids and nucleotides) in GI cancer surgery studies measuring at least one clinical outcome.

### Methods:

16 randomized controlled trials (n=1387) with either isonitrogenous, isocaloric (IN/IC) controls (6 trials) or no supplementation (10 trials) were meta-analyzed. 6 trials had a mixed GI cancer surgery population, 4 were colorectal, 2 pancreatic, 2 gastric and 1 each liver and esophageal cancer. All trials evaluated the immunonutrition (IM) blend of supplemental arginine, n-3 fatty acids and nucleotides found in IMPACT<sup>®</sup> formulas.

### Results:

Patient	Infectious Complications	Length of Stay (LOS)
IM formulas vs. IN/IC	<b>Odds Ratio (OR) 0.49</b> (95% CI 0.28, 0.85, p=0.01)	<b>-1.06 days</b> (-2.76, 0.63, p=0.22)
IM formulas vs. no supplementation	<b>OR 0.52</b> (95% CI 0.35, 0.78, p=0.001)	<b>-2.06 days</b> (-3.07, -1.06, p<0.0001)
IM formulas vs. controls combined (all studies)	<b>OR 0.52</b> (95% CI 0.38, 0.71, p<0.0001)	<b>-1.57 day</b> (-2.48, -0.66, p=0.0007)

- ✓ A large decrease in risk of infectious complications was shown when IM formula were compared with IN/IC controls, and this demonstrating the value of the immunonutrient blend apart from supplementing calories and protein.
- ✓ Regardless of the control compared, use of this specific IM formulation prior to GI cancer surgery decreased the risk of infectious complications by ~50%.
- ✓ Significant LOS reductions were associated with IM formulas used prior to GI cancer surgery among all studies analyzed, and when controls were unsupplemented.
- ✓ Differences between groups for non-infectious complications and mortality were not found.

### Conclusion:

- Preoperative use of IMPACT<sup>®</sup> formulas is superior to standard oral nutritional supplements in GI cancer surgery patients.
- A minimum of 5 days of preoperative IMPACT<sup>®</sup> formula, orally or enterally should be part of routine practice in the care of GI cancer surgery patients.

### Summary prepared by Nestlé Health Science.

The complete study may be accessed online:

<https://www.ncbi.nlm.nih.gov/pubmed/30817349>