

# Enhanced Recovery After Surgery: Does the Provision of an Immune-Modulating Protein Supplement Improve Post-Operative Outcomes?

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## BACKGROUND & OBJECTIVE

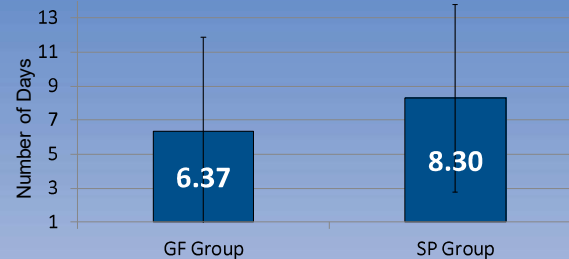
It is widely known that patients undergoing surgery with poor nutrition status are at greater risk for post-operative complications such as increased length of stay (LOS), surgical site infections (SSI), and 30-day readmission. Enhanced Recovery After Surgery (ERAS) is a set of multidisciplinary perioperative protocols designed to promote early recovery for the surgical patient and decreased healthcare costs for the hospital. A fundamental aspect of the ERAS protocol set is pre-operative nutrition optimization. This study aimed to determine if the provision of an immune-modulating protein supplement via grant-funded efforts (Impact AR®, Nestlé™) prior to surgery improves clinical outcomes versus patients who purchased the supplement out-of-pocket. A cross-sectional, retrospective study was conducted to compare grant funded (GF) and self pay (SP) cohorts.

## METHODS

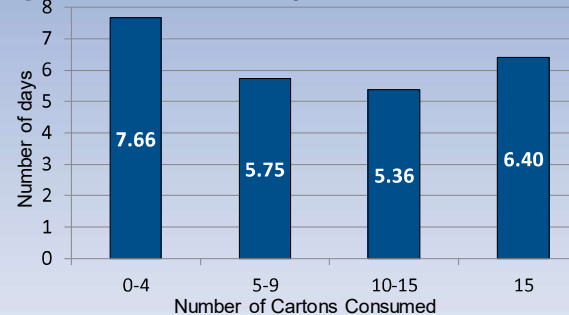
Since 2014, all patients undergoing gastrointestinal surgery are instructed to drink Impact AR® (3 cans/day for 5 days) prophylactically per ERAS protocol. A Nestlé™ funded grant supplied 250 regimens of the immune-modulating protein supplement to the GF group. Instructions for consumption and a survey reporting dietary compliance, feelings of preparedness for surgery, and GI symptoms related to the product were included. Patients in the SP group were given the same survey. 120 GF surveys and 11 SP surveys were collected at post-surgical visits. 109 patients who purchased Impact AR® out-of-pocket during the same time frame were added to the SP group to create equal sample sizes. Post-operative outcomes were collected from MUSC databases for both cohorts. SSI, LOS, and 30-day readmission rates were then compared between the GF group (n=120) and the SP group (n=120). Self-reported dietary compliance was compared between the cohorts using the available surveys.

## RESULTS

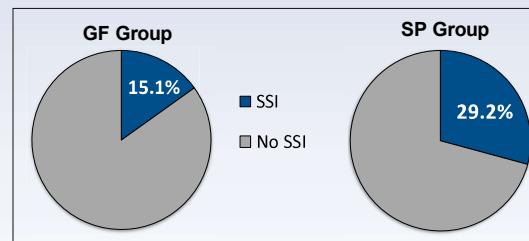
**Figure 1. Mean and Standard Deviation LOS**



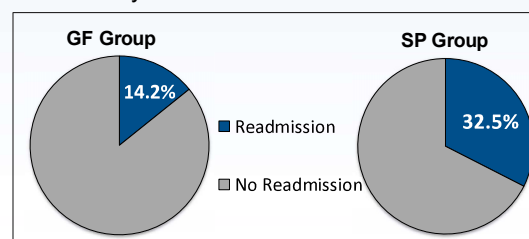
**Figure 2. GF Group: Average LOS per consumption level**



**Figure 3. Incidence of SSI**



**Figure 4. 30-day readmission rates**



## CONCLUSIONS

- Statistically significant difference was found between the GF group vs. SP group mean and standard deviation LOS ( $p = 0.03$ )
- Median LOS for the GF vs. SP group were 4.5 days and 6.0 days respectively.
- The increased LOS value for the 15 carton consumption group was likely influenced by 5 outliers with LOS  $\geq 14$  days. Omitting those outliers gives a mean of 5.58 days.
- Dietary compliance rates for GF group strata:
  - 0-4 cartons:  $n = 12$  (10%)
  - 5-9 cartons  $n = 8$  (6.7%)
  - 10-15 cartons  $n = 19$  (15.8%)
  - 15 cartons  $n = 81$  (67.5%)
- The most common reported reason for not drinking supplements was taste preferences.
- Comparing LOS between GF and SP groups using dietary compliance strata is limited by the small sample size of returned SP surveys ( $n = 11$ )
- Incidence of SSI and 30-day readmission rates were reduced in the GF group. There is no way to determine the significance of this data.

## SUMMARY

Previous research supports this data by explaining the benefits of perioperative immune-modulating protein supplementation. A no-cost provision of Impact AR® for surgical patients has shown to be beneficial in preventing post-operative complications, which can in turn decrease the financial burden on hospitals. A study limitation was the small sample size of returned SP surveys. Additional research with larger sample size and greater survey response rates is needed to determine if drinking the full regimen results in greater benefits than partial consumption.

## REFERENCES

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