

## A Comparison of IMPACT Advanced Recovery® Immunonutrition Drink vs. Ensure® Enlive® Advanced Therapeutic Nutrition Per Serving

PRODUCT	IMPACT Advanced Recovery® Drink	Ensure® Enlive® Oral Supplement	IMPACT Advanced Recovery® Drink Attributes
Company	Nestlé Health Science	Abbott Nutrition	
Serving Size	6 oz (178 mL)	8 oz (237 mL)	▶ IMPACT Advanced Recovery Drink has a smaller volume per serving; designed to help promote compliance. <sup>1</sup>
Application	Unique oral formulation of immunonutrients (arginine, omega-3 fatty acids [EPA + DHA from fish oil], nucleotides) clinically proven to reduce the risk of infectious complications and length of stay (LOS) after <b>major elective surgery</b> . <sup>2</sup>	"Designed to help rebuild strength and energy from the inside, with an all-in-one blend to support health."	▶ In a meta-analysis of 28 studies of immunonutrition formulas, only IMPACT® formula containing arginine, n-3 fatty acids and nucleotides showed a significantly reduced risk of infectious complications vs. standard nutrition after major elective surgery. Other arginine supplemented formulas vs. standard nutrition did not make a significant difference in these outcomes. <sup>2</sup> ▶ Immune and vascular functions were shown to be better in colorectal surgery patients given the immunonutrients in IMPACT Advanced Recovery® vs. isocaloric, isonitrogenous supplementation of calories and protein alone. In fact, in this scenario intervention with calories and protein alone was comparable to no intervention. <sup>3</sup>
Recommended Intake	3 cartons for 5 days pre-, peri- or post-operatively, or as otherwise recommended by a healthcare provider	2 servings/day	▶ When used in the 5-10 day period surrounding surgery, IMPACT Advanced Recovery® Drink has been studied to improve clinical outcomes after various major elective surgeries (GI, cardiac, H/N, bladder, gyn-onc, hip). <sup>3-9</sup> ▶ No studies of Ensure® Enlive® used in a comparable perioperative time frame were found in the literature showing reductions in infection or LOS.
Calories (kcal/mL)	1.2	1.5	
Calories (kcal)	200	350	
Protein (g)	<b>18</b> (35% of total kcal)	20 (23% of total kcal)	▶ On a per calorie basis, IMPACT Advanced Recovery® contains 34% more protein than Ensure® Enlive®.
Protein Source	Calcium caseinate (milk), sodium caseinate (milk),  <b>4.2g Supplemental L-arginine</b>	Milk protein concentrate, sodium caseinate, soy protein isolate, whey protein concentrate  <b>No supplemental L-arginine</b>	▶ IMPACT Advanced Recovery® Drink contains supplemental L-arginine and casein (milk) protein, a source of all essential amino acids. ▶ Arginine supports host-immune defenses by promoting T-lymphocyte growth and replication, and nitrogen retention. <sup>10-12</sup> Arginine also supports vasodilation to improve blood flow and oxygenation. <sup>3,13,14</sup> ▶ Supplementation with L-arginine supports proline synthesis and increases collagen deposition in wounds. <sup>14,15</sup> ▶ Critical care guidelines suggest formulations that include arginine with other agents including EPA/DHA, glutamine, nucleic acid) for perioperative use in SICU patients. <sup>16</sup>
Fat (g)	8 (34% of total kcal)	11 (28% of total kcal)	
Fat Source	<b>Refined fish oil</b> (anchovy, sardine), corn oil, MCT, soybean oil	Canola oil, corn oil	▶ Data indicate formulas containing <b>both</b> supplemental arginine and fish oil (EPA + DHA) are needed to decrease the risk of infection and LOS in high-risk surgery patients. <sup>16,17</sup>
n6:n3	<b>1.2:1</b>	N/A	▶ IMPACT Advanced Recovery® Drink provides a low n6:n3 ratio to help support modulation of proinflammatory mediators. <sup>18</sup>
EPA + DHA (g)	<b>1.1</b>	<b>No supplemental EPA + DHA</b>	▶ Provides omega-3 fatty acids (EPA + DHA) from fish oil to help manage the inflammatory response. EPA + DHA modulate cytokines to produce less inflammatory and less immunosuppressive mediators, and give rise to inflammation resolving mediators. <sup>19</sup>
ALA (g)	<0.1	0.61	▶ The conversion of alpha-linolenic acid (ALA) to EPA and DHA is inefficient and may be insufficient. <sup>20,21</sup> Therefore, providing adequate amounts of preformed EPA + DHA may be important.

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Supplemental Nucleotides (mg)	430	No supplemental nucleotides	<ul style="list-style-type: none"> <li>▶ IMPACT Advanced Recovery® Drink provides dietary nucleotides, a source of purine and pyrimidine bases for DNA/RNA synthesis, which supports replication of the rapidly dividing cells of the immune system (i.e. T-lymphocytes).<sup>22,23</sup></li> <li>▶ In a meta-analysis of 28 studies of immunonutrition formulas, <b>only IMPACT® formula</b> containing arginine, n-3 fatty acids and nucleotides showed a significantly reduced risk of infectious complications vs. standard nutrition after major elective surgery. Other arginine supplemented formulas vs. standard nutrition did not demonstrate a significant difference in outcomes.<sup>2</sup></li> </ul>
Caβ-hydroxy-β-methylbutyrate [CaHMB] (g)	No supplemental CaHMB	1.5	<ul style="list-style-type: none"> <li>▶ CaHMB containing oral supplements have not been compared with isocaloric isonitrogenous controls in surgical populations, hence the value remains to be shown.</li> <li>▶ Critical care guidelines do not currently advise use of CaHMB.</li> </ul>
Carbohydrate (g) (% of total Kcal)	15 (31)	44 (49) 45 chocolate (49)	<ul style="list-style-type: none"> <li>▶ 15 g of carbohydrate per serving helps to minimize modifications otherwise needed in meal plans for diabetes and may assist glucose control.</li> </ul>
Carbohydrate Source (sugars)	Sugar, Maltodextrin, Sucralose (non-nutritive) (13g)	Corn syrup, sugar, dietary fiber (20g; 22g chocolate)	<ul style="list-style-type: none"> <li>▶ IMPACT Advanced Recovery® Drink contains 35% less sugar content than Ensure® Enlive®.</li> </ul>
Dietary Fiber (g) Fiber Source	No added fiber	3 scFOS®	<ul style="list-style-type: none"> <li>▶ IMPACT Advanced Recovery® Drink contains no added fiber to combine with an oral diet following surgery.</li> </ul>
Vitamin D (mcg)	3.8	12	<ul style="list-style-type: none"> <li>▶ Oral supplements with increased amounts of Vitamin D have not been compared with isocaloric isonitrogenous controls with contemporary amounts of Vitamin D in surgical populations.</li> <li>▶ Interventional trials in critical illness show high dose Vitamin D is required to improve Vitamin D status.<sup>24</sup> Further, supplementation did not decrease LOS in an ICU study that included Vitamin D deficient surgery patients.<sup>25</sup></li> </ul>
Osmolality	730	820 (920 chocolate)	
Flavor	vanilla	vanilla, chocolate, strawberry	<ul style="list-style-type: none"> <li>▶ IMPACT Advanced Recovery® Drink recipes available at <a href="http://www.NestleHealthScience.us">www.NestleHealthScience.us</a></li> <li>▶ IMPACT Advanced Recovery® Drink is halal. Ensure® Enlive® vanilla flavor is not halal.</li> </ul>

## The Path To a Successful Surgery Starts With the Right Nutrition at the Right Time

### IMPACT Advanced Recovery® Drink provides:

- ▶ The unique combination and amounts of arginine, n3 fatty acids (EPA + DHA from fish oil) and dietary nucleotides proven to decrease risk of infectious complications and LOS after major elective surgery.<sup>2</sup>
- ▶ The opportunity to optimize outcomes by using the same blend of evidence-based immunonutrients preoperatively and postoperatively in patients who require tube feeding after surgery.
- ▶ A lower volume, lower carbohydrate intervention that fits easily into a regular diet for surgical patients with or without conditions such as obesity or diabetes.

## References

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\*This statement does not constitute an endorsement of IMPACT Advanced Recovery® Drink or any other Nestlé HealthCare Nutrition products by SCCM or A.S.P.E.N.

This summary is provided for comparison purposes only; not all clinical considerations are included. This document is not intended to be a substitute for clinical judgment.

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