

*The ordinary man can achieve greatness if he's willing to fuse skillful measures with extraordinary effort.*

Granite Supplements provides cutting edge, healthful nutritional tools to complement your bodybuilding **strategic plan**. Whether you're generally **restricting carbohydrate** (e.g., keto-dieting) or simply prefer a lighter, **carb-free intra-workout recovery drink**, we've created **Intra-Keto**, a low-carb, ketone-enriched version of **Recovery** [but sweetened with "keto-friendly" erythritol<sup>1,2</sup>].

## When It's Time to **GRIND**... **Intra-Keto!**

We've included some of the recovery and performance perks of Recovery [electrolytes, essential amino acids (EAAs)] in Intra-Keto, to ensure **hydration** and **anabolism / anti-catabolism**, but replaced carbohydrate with  **$\beta$ -hydroxybutyrate**, so you now have the flexibility to:

- **Build upon an entry-level dose** of ketone bodies (as [goBHB™](#)  $\beta$ -hydroxybutyrate salts) by supplementing with **additional** ketone bodies and/or medium chain triglycerides<sup>3</sup>.
- **Focus your nutrient timing** towards pre- and/or post-workout carbohydrate intake (e.g., eat more whole foods).

Intra-Keto is a unique nutritional **performance** and **recovery** tool. In addition to the major electrolytes lost in sweat<sup>4</sup> [to help keep you well hydrated<sup>5,6</sup>], we've included a synergistic combination of three ingredients:

- **Ketone bodies** as  $\beta$ -hydroxybutyrate salts
- **Essential Amino Acid** blend for anabolism / anti-catabolism
- [Sensoril®](#) **Ashwagandha** extract for its adaptogenic effects

### Intra-Keto Trio



## Essential Amino Acid Blend

- We included the **Essential Amino Acid (EAA) blend** because it's the **essential** [not the non-essential<sup>7</sup>] **amino acids** that trigger muscle protein synthesis<sup>8-10</sup>. Leucine (3g) sits atop this EAA stack because of its primacy in triggering protein anabolism<sup>11-13</sup>. We were sure focus on the other branched chain aminos (BCAAs; Isoleucine and Valine at 1.5g each) as well, because the BCAAs are known to reduce muscle breakdown and post-exercise soreness and damage<sup>14,15</sup>.
- The other EAAs blended in **Intra-Keto** are based on the anabolic EAA mixture used extensively in research<sup>8,16-19</sup>, adjusted slightly to take advantage of the anabolic signaling<sup>12</sup> and insulin-releasing<sup>20</sup> effects of lysine and phenylalanine.

## Ketone Bodies

- Intra-Keto contains 4,600mg (4.6g) of ([goBHB™](#)) **β-hydroxybutyrate (BHB) salts**, a hearty **entry-level dose** of this ketone body. By building upon this with additional BHB salts, or ideally, a ketone ester supplement, blood ketone levels can be elevated dose-dependently<sup>21-24</sup>. [Unfortunately, the extremely viscous, oily and bitter<sup>25</sup> nature of available ketone monoesters would make a sticky, nasty mess out of the Intra-Keto powder.] Still, low dose of BHB salts (~17g for a 220lb bodybuilder) can rapidly elevate blood BHB<sup>21</sup> to levels normally seen only after 1-2 days of fasting<sup>26</sup>, and the same dose of BHB esters can almost double peak BHB levels<sup>21</sup>. [**NOTE:** That amount of BHB **salt** would mean a large acid/salt load, but adding (caprylic and capric acid-based) medium chain triglyceride can make BHB salts much more ketogenic<sup>3,27</sup>.] While the data are very sparse<sup>22</sup>, elevating blood ketones may serve as an alternate fuel to enhance endurance performance<sup>25</sup>, suppress appetite<sup>28</sup>, enhance cognition<sup>29,30</sup> and possibly reap other metabolic benefits of ketosis<sup>24,31-33</sup>. Anecdotal reports of a positive cognitive effect of consuming ketones pre-exercise are supported mechanistically<sup>30</sup>, so you may feel energized by the BHB in Intra-Keto. On the other hand, a recent study found that a 0.3g/kg dose (~30g for a 220lb bodybuilder – much larger than the dose in Intra-Keto) of BHB salts impaired high intensity cycling exercise performance<sup>34</sup>, possibly by forcibly shifting metabolism toward fats<sup>22,25</sup> and away from the vital carbohydrate needed during high intensity efforts<sup>35,36</sup>.

## Sensoril® Ashwagandha Extract

- A successful training and diet cycle takes weeks of committed and continuous effort. Nobody wants to be a flash in the pan, so to speak, so we've included **ashwagandha** (*Withania somnifera* extract; 125mg of [Sensoril®](#) standardized for **withanolide glycoside conjugates**, oligosachharides and withaferin A) to ensure **Intra-Keto** keeps you adapting long after your workout. Also known as Indian ginseng, ashwagandha is an "adaptogenic" herb that's been used for centuries in Ayurveda and traditional Indian medicine to relieve stress, promote vitality<sup>37</sup>, enhance adaptation and normalize physiological function<sup>38-40</sup>.

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