

Product Development Guide

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Formulating for Energy and Recovery

Clean label solutions for the growing sports nutrition market

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Formulating for Energy and Recovery

Clean label solutions for the growing sports nutrition market

Sports nutrition products used to appeal mainly to hardcore athletes and bodybuilders. Today, this category is much broader, offering supplements that enhance physical activity in myriad ways and capture consumers of all stripes. Whether someone is an elite triathlete, a CrossFit devotee, an aging Baby Boomer or a time-strapped working parent trying to stay fit, they can find a plethora of innovative solutions to support their precise needs.

Given this category's expanded appeal, it's no surprise sales keep climbing. According to the latest *Nutrition Business Journal* (NBJ) data, sports nutrition and weight management supplements, which NBJ tracks together, pulled in US\$42.5 million in 2018. That's a 6.7% increase over the previous year, driven largely by functional sports beverages (14.3% growth), sports hydration and energy drinks (7.8% growth) and sports nutrition powders and pill supplements (6.7% growth). By 2020, NBJ expects this category to command \$55.6 million.

As for products that boost energy, a key component of supporting athletic endeavors, sales reached \$4.3 billion in 2018, a 6.6% increase over 2017. Although NBJ tracks these supplements separately from sports nutrition, the two categories do overlap, with sports nutrition products that make an energy claim accounting for 43% of all energy supplements.

When it comes to function and reason for use, sports nutrition products run the gamut, covering consumers' needs before workouts, during exercise and after physical activity. Within that, two especially popular product types are supplements that enhance energy, just as the sales data show, and those that aid post-workout recovery. But even within these two subcategories, there is plenty of variation, with ingredients supplying energy or supporting recovery through multiple different pathways.



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According to Nutrition Business Journal (NBJ) data.

Looking first at energy, specific ingredients can provide a boost either exogenously or endogenously. Caffeine is among the most widely used exogenous energy sources. This plant-derived stimulant plays tricks on the brain, making it believe the body should remain active. This, in turn, sharpens mental alertness¹ and bolsters athletic performance, such as by increasing speed, power and endurance.² Because caffeine jolts energy in these ways, clean, plant-sourced caffeine ingredients are smart additions to pre-workout supplements.

Ingredients that elevate energy endogenously, on the other hand, help the body generate energy via its own mechanisms. One common way they do so is by stimulating production of adenosine triphosphate (ATP), the “energy molecule” that dwells in cells’ mitochondria. Intense exercise saps ATP stores, and it can take time for the body to replenish them. Nutrient-rich foods aid this process, but certain dietary supplement ingredients can further ramp up ATP production.

Another way by which ingredients increase energy endogenously is by supplying medium-chain triglycerides (MCTs), which the body can tap for energy quickly, making them less likely to be stored as fat.³ The body also converts MCTs into ketones to use as fuel instead of glucose when it reaches the state of ketosis.

Certain ingredients can also support optimal energy levels indirectly, by promoting calm mind and quality sleep. A good night’s rest is critical for athletes, as it reenergizes the brain and body for the next day and training session and enables muscle growth and repair.⁴

Moving on to post-workout recovery, there is a wide range of solutions targeting different aspects. A big one is joint support, as exercise works the body hard and joints tend to stiffen with age. Either situation can cause soreness, which several different supplement ingredients address, whether by supporting a healthy inflammation response or mitigating oxidative stress. Glucosamine remains the most popular joint health ingredient, but consumers are increasingly interested in alternative solutions that may be faster acting.



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Whether the goal is to enhance energy for their workouts or support healthy recovery from these pursuits, consumers expect sports nutrition supplements to deliver results. Brand holders and product developers can assure efficacy by selecting high-quality ingredients supported by solid clinical research. Today's consumers also want clean-label supplements with short ingredient lists featuring components they can pronounce. Many shoppers look specifically for products that are natural, organic, allergen free, vegan or non-GMO.

But no matter what, for sports nutrition supplements to find success on the market, they must have great flavor, texture and mouthfeel; or, if they are in pill form, be easy to swallow. Because taste and ease of use are primary drivers of repeat purchases, nailing these aspects is just as important as formulating with the best actives. ♦

Endnotes

- 1 Smith A. Effects of caffeine on human behavior. *Food Chem Toxicol.* 2002 Sep;40(9):1243-55. DOI: 01: 10.1016/S0278-6915(02)00096-0
- 2 Graham TE. Caffeine and exercise: metabolism, endurance and performance. *Sports Med.* 2001;31(11):785-807. DOI: 10.2165/00007256-200131110-00002
- 3 St-Onge MP and Jones P. Physiological Effects of Medium-Chain Triglycerides: Potential Agents in the Prevention of Obesity. *The Journal of Nutrition*, Volume 132, Issue 3, March 2002, Pages 329–332, DOI: 10.1093/jn/132.3.329
- 4 O'Donnell S et al. From pillow to podium: a review on understanding sleep for elite athletes. *Nat Sci Sleep.* 2018;10:243–253. DOI:10.2147/NSS.S158598





Formulator's Resource

Q&A



Company Name: Chenland Nutritionals, Inc.
Contact: Sherry Guo
Title: Managing Director

1 What specific ingredients or specialized strategy do you offer for brands in supplement applications that support energy and/or recovery for athletic performance?

JointAlive™ is a patented and synergistic herbal extract blend of Epimedium brevicornum Maxim, Dioscorea nipponica Makino and Salvia miltiorrhiza Bunge. It reduces joint discomforts caused by exercise and aging, relieves joint pain quickly and is long lasting. Therefore, it improves joint flexibility and mobility and helps to maintain healthy joint and bone functions, which is critical for athletic performance.

In in vivo studies, JointAlive™ reduces the concentration of proinflammatory molecules in the serum of arthritic rats, increases the threshold of the arthritis pain, reduces pain sensitivity and improves joint stiffness and flexibility of arthritic rats. All data show that it is more effective than the glucosamine group.

2 What advancements and innovations do you offer in support of specific formulations and product innovations?

JointAlive™ was developed based on 2,000 years of traditional Chinese medicine history. All three herbs have the proven efficacy and safety records to help joint problems, which were validated with our in vivo clinical data and toxicity studies. Its mechanism of action at protein level was elucidated as well.

All Chenland ingredients are harvested from authentic medicinal material cultivation areas with full traceability from seed to extract.

3 In what categories of products are your ingredients ideally suited for formulation?

JointAlive™ can be used either as an independent formula or work with other ingredients in your formulation related to joint health, bone health, sports nutrition, pain relief and immune support categories.

4 What specifically sets you apart from the market competition?

JointAlive™'s significant features include: 1. Effective herbal formulation; 2. Small dose at 300-600 mg/day; 3. Patent protected; 4. Established mechanism of action; 5. Joint discomfort relief 6.5-times better than glucosamine.



An Integrative Solution For Joint Health

- Supports Joint Flexibility and Mobility
- Maintains Healthy Joint Functions

Quick Relief and Long Lasting



Effective Herbal Formulation



Small Dose at 300-600 mg/day



Strict Quality Control



Established Mechanism of Action



Patent Protected



Safe and Natural



**Discomfort relief 6.5 times better
than Glucosamine**



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Functionality Evaluation