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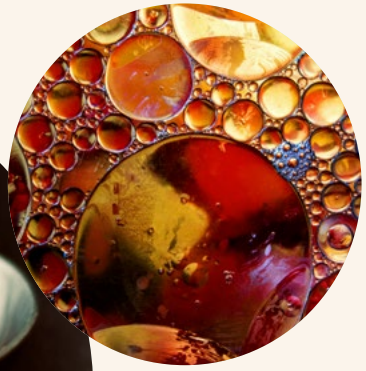

2024 ACTIVE NUTRITION REPORT • FORMULATION HACKS • BY HANK SCHULTZ

2024 active nutrition insights

New science on 5 top ingredients will give formulators fresh ideas about dosing and frequency so they can design best-in-class supplements to meet this rapidly expanding sector

FORMULATION HACKS

5 2024 active nutrition insights

New science on 5 top ingredients will give formulators fresh ideas about dosing and frequency so they can design best-in-class supplements to meet this rapidly expanding sector

Active nutrition is the product development buzzword of the day. It takes hard-core sports nutrition concepts that once were the purview of ripped gym rats, and extends it to aspirational consumers who simply want more out of life and seek out nutritional products to help them get it.

That broadening of the market via the active nutrition concept has helped the sports nutrition sphere record strong levels of growth. When surveying the market, Nutrition Business Journal takes a broad view of the category, combining sales numbers from functional sports protein beverages, nutrition bars and gels, sports hydration/energy drinks, as well as sports nutrition supplements. NBJ, which is another Informa publication, reported that sales in the category grew 12% from 2022 to 2023, growing to $62 billion.

Many finished product marketers are seeking ways to extend their lines (or launch entirely new ones) that can tap into this growing market. In general, sports nutrition consumers seem savvier than run-of-the-mill supplement buyers and so are more focused on what substantiation brands have for the benefits they're claiming.

In sports nutrition, as with some other active lifestyle product categories like bicycles and running equipment, what's hot in the market is to some extent driven by what the experts in the category are using.

In cycling, the equipment the racers use sets the standard for what weekend warriors are clamoring to arm themselves with. In running, the shoes worn and endorsed by race winners are also attractive to the casual jogger.

In the same vein, active nutrition consumers can be expected to increasingly demand products that have been shown to work, because that's what the hard-core users are doing.

Products making vague claims backed by studies of only tangential relevance to the ingredients and dosages found in the product run the risk of being poor investments from a product development standpoint. Savvy social media campaigns and relationships with the right celebrities and influencers can compensate for flabby formulations. But the best return on investment (ROI) seems to come when the products themselves are something that the end-users can really believe in, as opposed to something they became initially excited about because of catchy marketing.

Natural Products Insider

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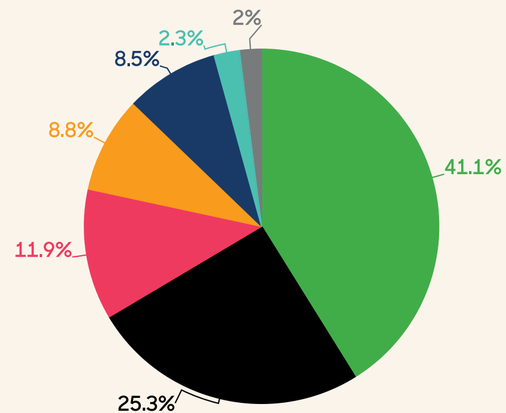
Why has sports grown beyond athletes?

From energy and hydration drinks to protein powders and drinks, NBJ provides consumer surveys and insightful intel on the booming and expanding sector.

To facilitate the process of creating that kind of product, this report focuses on recent scientific results that can be used to back claims. The report will focus on three well-known product categories: protein, creatine and electrolytes. And then two other lesser-known ingredients (at least within the active nutrition context) will be included, too: hydroxymethylbutyrate (HMB) and ashwagandha *(Withania somnifera)*.

$69.86 billion U.S. sports nutrition and weight management industry by category, 2023



Source: *Nutrition Business Journal*

1 Protein

The search for foods high in protein is as old as humans. While the need for amino acid consumption will never change, the way that protein is ingested has.

New protein sources have been developed in recent years. And fresh research has elucidated new ideas about dosing and frequency that is relevant to active nutrition formulations.

Protein is one of the main hero ingredients in active nutrition formulations. It's one of the basic building blocks of nutrition we all learned about as kids, along with fats and carbohydrates. Proteins form the building blocks of tissues and are vital for some important functions, such as blood clotting. Protein synthesis is the key aspect of building and maintaining muscle fibers.

In addition to protein's importance in sports nutrition, it is also key to maintaining robustness for elderly consumers, with many physicians now recommending seniors deliberately increase their intake on a "grams per kilogram of body weight" basis. (A kilogram equals 2.2 pounds, so a 135-pound individual weighs 61 kilograms, and a 185-pound individual weighs 84 kilos.)

Add to that the popularity of protein as a dieting aid, with the thought being that high intakes will boost satiety, and have also been shown to improve appetite control and reduce subsequent food intake.

All those factors combined have given a strong boost to growth in the category. According to NBJ, protein (supplements and powders) grew 8.7% from 2022 to 2023, to hit a market size of $7.92 billion.

Some health authorities call for certain levels of protein intake, with the standard National Institutes of Health (NIH) recommendation being about 0.8 grams of protein per kilogram of body weight, which works out to 75 grams for an adult man who weighs 185 pounds, and 50 grams for a 135-pound adult woman.

Whey protein is rapidly absorbed, is well tolerated by almost all consumers, and is easy to formulate with as it dissolves easily and has a neutral taste.

Is higher-dose whey the way for aging groups?

SEE ARTICLE

What type of protein to use is also crucial for this particular demographic.

However, the standard USDA (U.S. Department of Agriculture) dietary recommendations have eschewed protein dosages, focusing instead on stipulating certain numbers of servings of specific foods — with meat, dairy products and legumes toting that protein bale. "Eat enough of what we tell you to eat, and you'll get adequate protein," is the implied, simplified message for consumers.

Early bodybuilders quickly realized that more protein consumption could help build muscle faster, and thus they were trailblazers when it came to high protein intakes. And the harder it was to choke down, the better … or so it seemed. Remember Sylvester Stallone's Rocky downing five raw eggs before his morning run?

In those early days of protein supplementation — and with many Americans starting to experiment with fully vegan diets — attention turned to the qualitative assessment of different sources of protein. The protein digestibility-corrected amino acid score (PDCAAS) is how that content is measured. The scoring came out of a FAO/WHO effort (UN's Food and Agriculture Organization/World Health Organization) in the early 1990s. The system ranks various proteins against the "gold standard" of egg protein in terms of essential amino acid (EAA) content, as well as digestibility (as determined via a fecal assay in rats).

While other protein rating systems are available, PDCAAS is the most widely accepted. On this scale, egg, soy, milk protein, casein and whey rank as a 1. Meat proteins rank very close to this, while most proteins sourced from legumes other than soy rank from 0.7 to almost 0.8. Proteins from fruits, vegetables and grains rank lower.

Much attention was paid to this in the early waves of vegetarianism in the U.S., driven in part by the publication of the best selling book "Diet for a Small Planet" more than 50 years ago. In the first edition, author Frances Moore Lappé included complicated tables that adherents of the diet were supposed to use to mix and match different protein sources to make sure they took in adequate amounts of all the EAAs. Subsequent research proved this to be unnecessary because few vegetarians exhibited marked amino acid deficiencies.

Then the question started to turn to specific protein delivery formats. Rather than just eating lots of high-quality protein in food matrices like meat, fish and eggs, could specific, isolated proteins (or concentrates or hydrolysates) perform even better? Interest in these isolated proteins grew, too, as the research started to support higher protein dosages (up to 2.2 grams daily per kilogram of body weight) for optimum rates of muscle protein synthesis (MPS). These appeared difficult to achieve via food alone without overshooting calorie targets.

The big winner in that race was whey. Derived from the slightly viscous, sour liquid waste stream of cheese manufacture, this protein turned out to be a sports nutrition gold mine.

New paths for protein

DOWNLOAD REPORT

Precision fermentation, sustainability expand the formulation options.

Research and practice have shown that whey protein is rapidly absorbed and well tolerated by almost all consumers. In addition, it's simple to formulate with, as it dissolves easily and has a neutral taste.

Indeed, the 2017 protein position paper put together by the International Society of Sports Nutrition mentions "whey" 135 times in 15,000 words, far more than any other protein. Even though the ISSN paper is starting to get a bit long in the tooth, it is still one of the best resources on the subject with more than 388,000 citations — a staggering number — to date.

The ISSN paper identifies leucine content in a protein as one of the key elements of protein supplementation to support MPS.

As the paper puts it: "The EAAs (essential amino acids) are critically needed for achieving maximal rates of MPS, making high-quality protein sources that are rich in EAAs and leucine the preferred sources of protein."

Leucine is critical in that it seems to act as a signal to the body that EAAs are present, thus stimulating MPS. This is referred to as the "leucine trigger" hypothesis. Whey protein, in addition to being a fast-acting protein, also has the highest leucine content among isolated proteins.

It's unlikely a new protein source or delivery method will appear to knock whey off its perch. Yet, formulators continue to look for alternatives. This is driven not only by the need for product differentiation — the market can absorb only so many different whey SKUs before saturation — but also because whey can be obtained only as a byproduct of cheese manufacture.

(That said, new "precision fermentation" GMO-aided technology aims to provide bovine-free whey protein, which is worth tracking.)

Because of limited sourcing, the market will always be subject to some distortions, even as things continue to normalize after the pandemic.

Leucine stimulates muscle protein synthesis. A new study found dileucine results in a 60% greater increase in MSP compared to leucine.

With that groundwork laid, what new avenues for product formulators have opened as a result of the recent science? Below are some of the most exciting recent papers as identified by subject matter experts.

HOW LEUCINE WORKS

While the "leucine trigger" is a well-known idea, room still exists for research into the precise mechanisms of action, which might be a comment on how incredibly complex a system the body really is.

In a study published last year in the journal Nutrients, researchers used a novel immunofluorescence method to track exactly where leucine was helping to trigger MPS.

Leucine supplementation has been shown to boost the mTOR signaling system, resulting in increased protein synthesis and muscular growth. According to NIH, "The mammalian target of rapamycin (mTOR) signaling pathway integrates both intracellular and extracellular signals and serves as a central regulator of cell metabolism, growth, proliferation and survival."

NOT YOUR GRANDMA'S LEUCINE

A recent study published in the Journal of Applied Physiology on a new ingredient shows it might yet give whey a run for its money. The ingredient is L-leucyl-L-leucine monohydrate, or dileucine. The study identified dileucine as a structural component of all plant and animal proteins. It also showed that supplementing with dileucine resulted in a 60% greater increase in MPS compared to leucine, suggesting that dileucine is even more important than leucine for muscle health.

CAN PROBIOTICS BOOST PROTEIN?

Several studies have looked at ways to boost absorption of protein, which could be especially useful considering the trend toward higher dosages and recommendations of higher intakes for elderly consumers.

A study published in 2022 found combining a specific probiotic (*Weizmannia coagulans* GBI-30, 6086 [BC30]) boosted the absorption of a plant protein mixture, which in this case was rice protein paired with pea protein. "These results provide additional evidence that adding specific probiotic strains such as BC30 to various forms of protein can improve the appearance of amino acids in the blood. These outcomes hold great relevance to any population who is challenged to consume adequate doses of protein such as the aged or any population with gastrointestinal compromise that may lack the digestive efficiency required to assimilate larger doses of protein," the authors concluded.

Another study pairing *Bacillus coagulans* (the former name of *Weizmannia coagulans*) with a protein source (in this case whey) also found greater absorption. This study, done with healthy young adults, also found improved performance in both leg press and jumping measures.

B. coagulans is of special interest to formulators because it is a spore-forming organism that only germinates under specific conditions. That means it can be used in a variety of ways without the fear of having cells germinate in the bottle or within a protein bar, spoiling the whole batch.

Protein

PLANT PROTEINS HOLD UP THEIR END OF BARGAIN

While it's true that vegetarians eating a variegated diet generally no longer need to live in fear of lurking dietary deficiencies, the question remains as to whether plant-based proteins really measure up to animal sources when it comes to performance nutrition.

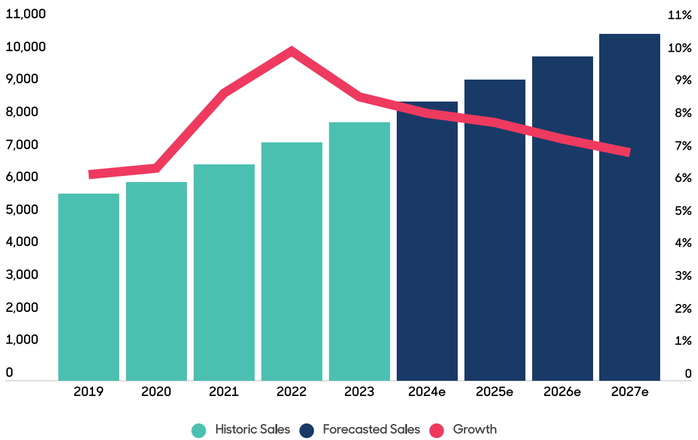
A recent meta-analysis published in the journal Nutrients put this issue to rest. The authors found that plant-based proteins were just as effective as other sources in preserving muscle mass and function in elderly subjects.

Protein quality is a must-know

To best follow regulations, foods and dietary supplements promoting protein content must document the quality of their protein sources.

READ ARTICLE

Sports nutrition protein powder sales and growth, 2019-2027e



Source: *Nutrition Business Journal* ($mil, consumer sales)

2 Creatine

Behind protein, creatine might be the next most-popular ergogenic ingredient used in active nutrition applications. New market data shows creatine sales on Amazon jumped a whopping 65% in the last year.

While the general public thinks of this ingredient primarily in the context of muscle building, research has shown it to have multiple potential effects.

A 2017 ISSN position paper on creatine makes the case this way:

"Studies have consistently shown that creatine supplementation increases intramuscular creatine concentrations, can improve exercise performance, and/or improve training adaptations. Research has indicated that creatine supplementation may enhance post-exercise recovery, injury prevention, thermoregulation, rehabilitation, and concussion and/or spinal cord neuroprotection. A number of clinical applications of creatine supplementation have also been studied involving neurodegenerative diseases (e.g., muscular dystrophy, Parkinson's, Huntington's disease), diabetes, osteoarthritis, fibromyalgia, aging, brain and heart ischemia, adolescent depression, and pregnancy."

This position paper followed on the heels of the protein paper in terms of its uptake within the research community, with 352,000 citations to date.

The multiple applications detailed in the position paper have helped drive significant growth in the category. According to NBJ, creatine, BCAAs (branched-chain amino acids) and pre-workouts combined (which is how NBJ breaks down the category) grew 19% from 2022 to 2023, reaching a market size of $1.74 billion.

Creatine is a naturally occurring non-protein amino acid found primarily in meat and seafood. Abundant in the human body, about 95% of creatine stores are found in skeletal muscle, with smaller amounts in the brain and testes. Its first isolation from meat was way back in 1832 by a French scientist.

Creatine goes mainstream

New research shows 10 ways creatine may aid concerns and situations.

READ ARTICLE

IS IT SAFE?

Several myths have built up around creatine use over the years. These include that creatine causes excess water retention and kidney damage, and that it can even make a person's hair fall out.

How these ideas gained the traction they did is somewhat obscure. Creatine was first and foremost an ingredient that helped strength athletes build bigger and more powerful muscles. However, some of those bodybuilders openly marinated themselves with steroids, so the whole sport came to be seen in the mainstream media as uncouth and perhaps unhealthy. Perhaps creatine was tarred with that same steroid-soaked brush.

A paper published in 2021 in the Journal of the International Society of Sports Nutrition (JISSN) categorically refuted these myths.

One of the weaknesses of creatine monohydrate is the relatively large doses required.

WHAT'S THE RIGHT FORM?

As an ingredient, creatine exists in many forms. By far the most well studied of these is creatine monohydrate. Proponents of some of the other forms may claim them to be more soluble and thus more bioavailable than creatine monohydrate, and therefore able to be offered in smaller doses.

The 2021 JISSN paper lists those kinds of claims as one of the myths about the ingredient. The authors admitted the solubility of creatine can be boosted in different ways. But does that mean the use of those forms leads to superior outcomes for the end-users? The authors responded with a resounding no.

"While some forms of creatine may be more soluble than creatine monohydrate when mixed in fluid, evidence-based research clearly shows creatine monohydrate to be the optimal choice," the paper concluded.

HOW CREATINE WORKS

The ISSN notes that more than 500 research papers have been published to date on creatine. The picture is becoming complete enough that a review published in 2021 in the journal Nutrients gives a roadmap formulators can use to understand both the pharmacokinetics and the mechanism of action of the ingredient. In layman's terms, it lays out where creatine goes, what it does when it gets there and how it does what it does.

About 95% of the creatine in the body is stored in muscle fibers, with the remainder in the heart, brain and testes. Creatine is involved with reactions within the mitochondria themselves, as well as the phosphogen and glycolytic system, which is a method for ATP (adenosine triphosphate) synthesis outside of the mitochondria. Creatine is also implicated in ancillary ATP pathways such as motor proteins and ion pumps.

HOW MUCH TO TAKE?

The developers of alternative creatine forms did hit upon one of the weaknesses of creatine monohydrate — that being the relatively large doses required. The ISSN position paper said numerous studies have revealed that when seeking to increase muscle power, creatine works best in a "front loading" scenario. The paper recommended that athletes embarking on a strength-training program should consume 0.3 grams per kilogram of body weight daily for a week. That's about 20 grams for a 155-pound individual. Then a person can back off to consuming 3 grams to 5 grams of creatine monohydrate a day.

That high dose works out to 25 grams a day for a 185-pound man. That would be five scoops of powder mixed in water for most powder form products on the market, which is a lot. The upside is that creatine monohydrate powder products are relatively inexpensive. At the 5 g/day maintenance dosage, the average cost is about $15 a month.

ARE THERE SEX DIFFERENCES?

One recent study could be of interest to formulators seeking to reach the female active nutrition market. Women have been underserved both in terms of research and the availability and quality of the products directed toward them.

In a study published late last year in the journal Nutrients, researchers investigated how creatine could maintain a high level of performance throughout a woman's menstrual cycle. The study called for participants to complete cycling ergometer sprint tests at various points during their menstrual cycle. The complex nature of the study design made finding marked differences between the test and placebo groups difficult. But it laid the groundwork for future studies.

"Sprint performance and recovery were reduced by the high hormone... The data suggests that creatine monohydrate could help counteract performance decrements caused by the high hormone." This data can help inform creatine monohydrate loading strategies for females, demonstrating potential benefits in the high hormone phase, the authors concluded.

Photo by: supliful.com

Creatine works better combined

For aging, body composition and cognition, dovetail creatine with these ingredients.

READ ARTICLE

3 Electrolytes

Rehydration beverages (also referred to as sports drinks) are one of the hottest product categories post-pandemic. According to NBJ, the category grew 15.8% from 2022 to 2023, to achieve a market size of $17.65 billion.

The question is why? That's difficult to say for sure, but indications suggest consumers are shifting away from traditional sugar-sweetened soft drinks toward hydration beverages. The soft drink market by one estimate is forecasted to grow at only a 1% rate between 2024 and 2028.

For years health authorities have speculated that consumers view rehydration beverages as somehow "healthier" than other options such as soft drinks. Some researchers are uncomfortable with that, noting that most rehydration beverages/sports drinks are almost as high in sugar as their soft drink counterparts and can lead to similar health issues such as tooth decay and obesity.

Electrolyte beverages in the United States go back to the original Gatorade formulas of the early 1960s that built on the science of oral rehydration. The product was basically salt, sucrose, water and citrus flavoring and made use of the so-called "glucose transporter" that allows water molecules to be absorbed more quickly. The salt was meant to replace salt lost through sweating, thus preserving an electrolyte balance. A standard Gatorade formula now contains about 80 calories in a 12-ounce serving, with 160 mg of sodium.

The trend in new product launches in the sports drink category has been toward offerings with less sugar and fewer calories — but in some cases, even more salt and potassium.

Some of that has been driven by on-the-ground experience. Physiologist Allen Lim, Ph.D., founder of the Skratch Labs brand, said he came to this approach while working in a support capacity for a professional cycling team. He said athletes complained that the products on the market at the time often made them sick to their stomachs.

READ ARTICLE

Are amino acids the future of hydration?

It's not about which electrolytes to include in drink mixes, but what else to include to help those electrolytes do their job better.

Photo by: Bluewater Sweden

His solution was to both cut the amount of carbohydrates in the drinks while also boosting the salt content to more closely match what athletes were losing via sweat.

The company offers low-calorie (daily hydration), medium-calorie and high-calorie versions, with the high-calorie offering meant for use during long, demanding competitions. That product also employs a special functional carbohydrate, cluster dextrin, also called highly branched cyclic dextrin (HBCD). While limited research has been published to date on this ingredient, users have praised the ability of this carbohydrate to offer a high number of calories while maintaining about the same osmolality as water for superior absorption.

One study on cluster dextrin focused on possible performance benefits in a CrossFit competition, which is a short-burst, high-power activity. The researchers found no discernible difference between the active and control groups.

Most of the enthusiasm for the ingredient seems to come from endurance athletes, such as Ironman participants and ultramarathoners. According to one recent review, HBCD is "quickly becoming one of the most popular sports and fitness supplements globally. Due to its high molecular weight and low osmolality, HBCD is thought to provide an ergogenic advantage over other carbohydrate sources via faster gastric emptying and faster absorption."

Still some formulators have cut the calories almost completely, relying on BCAAs and other ingredients to provide a benefit. The thinking is that many amateur athletes don't often exercise hard enough to need the high amounts of carbohydrates found in certain products.

One brand tested its recently launched low-calorie, sugar-free, amino acid-containing electrolyte product in a placebo-controlled trial and found a benefit in self-reported muscle cramps after exercise.

Cluster dextrin offers a high number of calories while maintaining about the same osmolality as water for superior absorption.

4 Hydroxymethylbutyrate (HMB)

HMB is found in the human body as a breakdown product of leucine. A fairly new ingredient on the sports nutrition landscape, HMB's effects on muscle metabolism were first described in 1996 by researchers at Iowa State University, among them Steve Nissen, M.D., and Naji Abumrad, M.D.

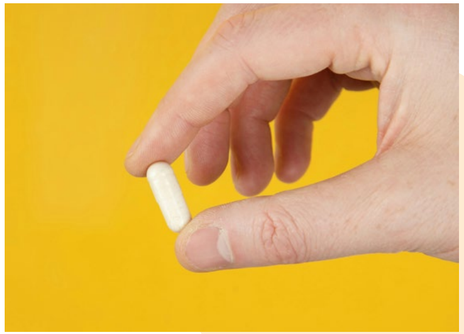
In that first published work on the ingredient, Nissen, Abumrad and their collaborators found "HMB supplementation resulted in an enhancement of muscle function in humans undergoing resistance exercise. This effect was clearly shown by increases in muscle strength and is supported by increased lean tissue mass in both studies and decreased biochemical indicators of muscle damage."

But they couldn't say exactly why. (Uncertainty about the mechanism of action is not uncommon in studies done on dietary ingredients and is true of some drugs, too.)

By the late 2010s, the consensus was that HMB had a multifactorial method of action, which is both good news for end-users as well as marketers of HMB products who might want to support claims on the ingredient.

A recent review put it this way: "The ergogenic effects of HMB supplementation are related to the enhancement of sarcolemma (the membrane that encases muscle fibers) integrity, inhibition of protein degradation (ubiquitin pathway), decreased cell apoptosis, increased protein synthesis (mTOR pathway), stimulation of the growth hormone/insulin-like growth factor-1 (GH/IGF-1) axis and enhancement of muscle stem cells proliferation and differentiation."

The 2017 ISSN protein position paper mentioned that ingesting protein and HMB together may be a plus in products aimed at strength training.



HMB can help preserve mobility, strength and quality of life among threatened populations who might be in danger of losing muscle function because of age.

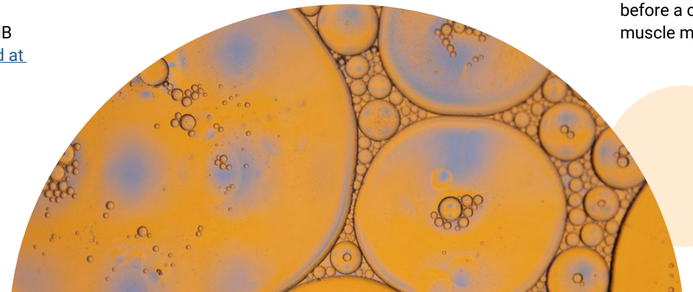


Photo by: Who's Denilo ?

Over the years, researchers and formulators have settled on 3 g/day as the effective dose. Almost all the products on the market are in pill or powder form, and most are stand-alone products, though a pairing with creatine is popular, too. Recent work has been done on the ingredient to stabilize it for use in beverages. But the lone HMB-infused water product on the market offers a mere 600 mg dose per bottle, and at $2.50 per unit (so, $12.50 per effective dose), it seems an expensive way to go.

AVOIDING WASTING DURING WEIGHT LOSS

Researchers have continued to try to elaborate on the ingredient's muscle and performance-related effects. A recent small study published in the Chinese Journal of Physiology looked at the effect of HMB supplementation on collegiate boxers. Boxing, like wrestling and some other sports, has strict weight cutoffs for competition. The issue in these sports for years has been how to cut weight fast before a competition without wasting muscle mass as well.

HMB might offer an answer, the researchers found. "HMB supplementation during acute weight loss may preserve fat-free mass and maintain heart rate response in subsequent simulated matches in well-trained boxers," they concluded.

TRYING TO KEEP UP STRENGTH RATHER THAN GETTING STRONGER

Keeping strength up among boxers cutting weight is a special-use case. But it is reflective of much of the recent work on the ingredient, in which researchers have turned to HMB to help preserve mobility, strength and quality of life among threatened populations who might be in danger of losing muscle function because of age, chronic disease or other reasons.

In other words, much of the recent research has focused on helping subjects who are older or ill keep what they have in terms of muscle function or perhaps to regain some of what they might have lost. Few recent studies have looked at using HMB to build more muscle or help healthy younger subjects who already perform well. Perhaps this is because doubts have been raised about its effectiveness in this scenario.

Recent studies along the "holding-the-line" idea have included ones done with community-dwelling older adults, trauma patients, patients waiting for liver transplants and malnourished cirrhotic patients.

Some of the products used in those studies, such as Abbott's Ensure Advance with HMB, also feature the 3-gram dose, which Abbott claims is equal to what you'd get if you ate more than 100 eggs. This line of research does suggest that health claims could be supported in products aimed at older consumers looking to maintain levels of strength and mobility for continued independent living.

READ MORE

MIPS FTW

Top 5 ingredients for pre-workout supplements

5 Ashwagandha

Ashwagandha (*Withania somnifera*) is an evergreen shrub species native to South Asia and the Middle East. The roots of the Sanskrit name mean "smells like a horse." That speaks to the musky smell of the plant's roots, which are traditionally seen as being the active part.

Within the Indian ayurvedic medicinal tradition, ashwagandha is revered as a so-called rasayana, which is described as an herbal or metallic preparation that promotes a youthful state of physical and mental health and expands happiness.

The plant has one of the longest histories of use among known medicinal herbs. According to some sources, the plant has been part of the ayurvedic tradition for as many as 6,000 years.

Ashwagandha has long been considered an adaptogen — an ingredient that helps the body effectively and gracefully deal with various kinds of stress and anxiety. Even though this is a time-honored story, recent research continues to build upon that base.

Interest in the herb was ramping up before the global pandemic. While immune-boosting ingredients benefited the most from that event, anything that purported to help consumers deal with stress did well, too. According to NBJ, interest in the ingredient has not faded as it has with some others post-pandemic. NBJ's latest data on the category showed that sales of ashwagandha products grew 10.67% from 2022 to 2023, reaching a market size of $332 million.

The ingredient's multifaceted mode of action has also led researchers to probe its possible performance benefits. If it can help the body deal with psychological stress, could it also improve the adaptations to physical training stress as well?

Limited research has been published in this area, but what has been done is promising. A study done in India and appearing in the JISSN found that ashwagandha supplementation led to significant strength increases over the placebo group in a cohort of young males doing a strength-training regime.

Photo by: roberthardin & Luca Tettoni

Ashwagandha is said to "promote a youthful state of physical and mental health and expands happiness."

Those results were powerfully supported in a study published in the journal Nutrients. The researchers found that healthy young men who supplemented with a daily dose of 500 mg of a mixed root and leaf ashwagandha extract gained almost twice as much in their one repetition maximum squat weight as did the placebo group. They also gained significantly more in their maximum one repetition bench press totals.

A more recent study published in the Journal of Ethnopharmacology showed that 600 mg of an ashwagandha root extract daily for eight weeks helped healthy, young, athletic men significantly improve their VO2 max scores over the control group. In addition, the ashwagandha group had better scores on a post-exercise recovery measure than did their counterparts.

The combined results — with ashwagandha showing benefits for both physical as well as psychological stress — make it an ideal ingredient for the active nutrition class of consumer goods. Formulations may also benefit from a few different branded ingredients (chief among them KSM-66 and Sensoril) with a raft of published research showing efficacy for these and other concerns.

READ ARTICLE

Ashwagandha sales boom

Here's to investments in science to substantiate health claims, as well as mainstream media attention and splashy advertising campaigns featuring celebrities.

Formulate on!

Formulators and product marketers have been seeking ways to attract more consumers to the sports nutrition sphere. Expanding product portfolios on the "active nutrition" side of the coin seems to be the best opportunity to accomplish that goal. The products and messaging, which make the promise that consumers can improve and be better or more than they already are, have proven appealing.

To deliver on that promise and realize those opportunities, however, brands will have to focus on matching claims with what the research supports.

Marketers of long-term, prophylactic ingredients such as omega-3s have less of an issue here. A claim of risk reduction for developing heart disease down the road, for example, does not give rise to a real-time experiential expectation. But active nutrition consumers are more or less looking for immediate effects — they want to get up without pain, they want to be active without complaint.

However, claims to improve performance, sharpen focus and the like that imply changes happening in real-time will be taken to heart by consumers. Failures to deliver on such promises won't result in bad health outcomes, but probably will be reflected in negative reviews penned by consumers who feel they've been misled.

Crafting claims tightly matched to what products can be expected to do is time consuming and could be expensive. But the payoff is consumer loyalty in one of the fastest-growing segments of the dietary supplement market.

Photo by: Shruti Mishra

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