

## The Minerals and Nutrients Behind Cognitive Function and Mood Regulation

According to the CDC, taking care of yourself and your body by eating well and getting enough sleep are healthy ways to cope with stress.<sup>1</sup> Nutrition, and the nutrients within our diet, play important roles in overall cognitive function and help support the regulation of our mood.

What we experience as our daily mood relies on a complex system of neurotransmitters for the regulation of normal brain function. Our brain, and the neurotransmitters it relies on, are often made in part from, or their function is aided by, nutrients such as Choline, Iron, and Magnesium. Let's explore these nutrients, how they work to support cognitive function and mood, and ways we can get more of them in our diet.

### Newest Nutrient- Choline



Choline is the most recently established essential nutrient in the United States, having been recognized as essential in 1998 by the Institute of Medicine.<sup>2</sup> One of choline's primary roles in the body is to serve as a precursor for acetylcholine, an important neurotransmitter which aids in:

- Brain and nervous system functions
- Muscle control
- Memory
- The regulation of mood

Despite its importance, just 11% of Americans get enough choline in their diet.<sup>3</sup>

### Iron's Importance



Iron is an essential nutrient that helps to carry oxygen in the body – making it necessary for neurological development and cellular function. Iron deficiency during pregnancy and early childhood can cause lasting consequences on cognitive function<sup>4</sup> and behavior.<sup>5</sup> Sadly, iron deficiency is more common than we might appreciate –



Mental Health Awareness Month

- More than 8 in 10 pregnant women in the United States do not get enough iron in their diet from foods and beverages alone<sup>6</sup>
- Nearly 7% of children age 1-5y in the US – over 1.3 million kids - are estimated to be iron deficient<sup>7</sup>
- Recent data shows that 1 in 5 women in the US are iron deficient<sup>8</sup>

Iron's essential role in supporting healthy cognitive function and behavior\* are key aspects of nutrition to help support a healthy lifestyle\*.

### Mighty Magnesium



Magnesium is an essential mineral that aids in multiple functions in the body, from supporting muscle and nerve function to blood pressure

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regulation.<sup>9</sup> Sometimes referred to as “nature’s physiological calcium channel blocker”, Magnesium works as an antagonist to calcium, helping muscle cells to relax.<sup>10</sup> There are multiple benefits to magnesium supplementation, but one noteworthy example is that a recent meta-analysis of randomized controlled trials showed that magnesium supplementation has been shown to help reduce time it takes to fall asleep (known as “sleep onset latency”) in otherwise healthy adults.<sup>11</sup>

### Maintaining Magnesium

Magnesium is involved with maintaining a healthy mood\*, and indeed Magnesium deficiency can lead to “personality changes”.<sup>12</sup> The prevalence of Magnesium deficiency in the United States is largely unknown, as there are many methodological challenges with assessing magnesium status.<sup>13</sup> However, nationally representative surveys show that roughly half (48%) of all Americans do not get enough Magnesium in their diets from food and beverages alone.<sup>14</sup> Older adults are especially at risk of Magnesium inadequacy, due to a combination of:

- Lower dietary intake
- A higher prevalence of chronic disease
- The use of specific medications which can increase the risk of Magnesium depletion<sup>15</sup>

### Discover Solutions

Balchem offers multiple options for brands looking to provide innovative nutritional products to help consumers support a healthy mood\* – from our award-winning<sup>16</sup> VitaCholine<sup>®17</sup> to our family of Albion<sup>®</sup> Minerals<sup>18</sup>– we have options to help you across multiple application formats and business segments. Contact us today to let us help you innovate, grow, and help your consumers lead healthier lives!

### References

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16. NutraIngredients-USA Awards: Meet the Ingredients of the Year!
17. VitaCholine<sup>®</sup> | Human Nutrition and Health (balchem.com)
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## Skin Health's Link to Longevity and Healthy Aging



It's not just there for looks – *skin serves a real biological function*. As the largest organ in the body, the skin shields our internal systems from external pathogens and provides key homeostatic functions that help the body regulate temperature and water balance.<sup>1</sup> The goal is to keep skin healthier as we age to support longevity and promote healthy aging.

Aging skin can occur more rapidly than ever before, due to UV rays, poor nutrition, and environmental toxins. When skin tries to restore hydration and mend itself, aging skin increases the production of inflammatory molecules known as cytokines. As cytokine levels increase, they begin to accumulate in the blood, resulting in a body-wide state of inflammation that has direct connections to chronic conditions like Alzheimer's disease and heart disease.<sup>2</sup>

### Consumer Preference for Longevity Claims

When it comes to longevity, consumers prefer claims related to preventative care, active lifestyle, and skin health, according to a recent Attitudes & Usage Study conducted by Balchem Corporation.<sup>3</sup> These claim areas also intersect with many of the top health concerns expressed by U.S. adults like reduced activity with age, heart health, and healthy appearance.<sup>4</sup> In fact, the importance of healthy aging is recognized by younger

and older adults alike, with 55% of 18–29 year-olds considering it extremely/very important compared to 74% for older consumers (56+ years).<sup>5</sup> There's also a propensity to take steps sooner, to age healthier. Almost half of older (18-25 years) Generation Z consumers report taking steps to age healthily from the age of 20 years old.<sup>6</sup> So when innovating with the healthy aging space, **skin health is**, and will remain a key entry point for the health and nutrition industry.

### Nourishing Your Skin to Support Healthy Aging

Because skin is a dynamic organ, it requires nutrients to help maintain a healthy structure and function so that it is more resilient to the aging process. We have shown sulfur as a critical nutrient to support healthy aging.<sup>7</sup> With its regulation of glutathione and other mechanisms in the body, MSM (or methylsulfonylmethane) can help support healthy skin, hair, and nails and play a role in the inflammatory process\*. **MSM works at the molecular level to promote proper cell structure and function so that your skin stays stronger, longer.**<sup>7</sup>

### The OptiMSM® Difference

OptiMSM® is a proven bioavailable, organic compound that's rich in sulfur, an important mineral with several functions including support of connective tissue and skin health\*.

MSM helps\*:

- Inhibit the signs of aging by supporting key nutrient production



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## 2023 Ice Cream Innovations

Balchem participated in the IDFA's Innovation Contest at this year's Ice Cream Technology conference. **Our Blueberry Muffin concept had a stunning 3rd place finish.**

[Fruity Flavors and Inclusions Shine at 2023 Innovative Ice Cream and Cultured Dairy Product Contests - IDFA](#)

## Balchem Solutions at Tortilla Industry Association show

Balchem exhibited at the TIA show highlighting our Encapsulation solutions for flour tortillas to control pH, and our Inclusion solutions to add visual, flavor and aroma impact.

We intend to be at both the TIA Show in Europe in Munich, Germany in October and at the TIA Technical Conference in Tampa, FL in November.

[Tortilla Industry Association](#)

## Out-of-the-Box Product Development: Unexpected Ingredient Solutions

Balchem presented at IMCD Technical Symposium on how our solutions in the Encapsulate and Inclusions space can be used for "out-of-the-box" development through novel uses in the Bakery, Meat (savory) and Confectionery spaces to overcome challenges such as production limitations, shelf-life and product losses, tight development timelines and clean label needs.

[Contact us for our innovative solutions.](#)

## Skin Health's Link to Longevity and Healthy Aging *Continue*

- Plays a supportive role in managing the inflammatory process
- Helps protect against oxidative stress by increasing the body's natural antioxidant capacity so that it can neutralize damaging free radicals

OptiMSM is purified through a proprietary multi-stage distillation process, resulting in high purity and very low moisture content.<sup>8</sup>

OptiMSM provides many benefits including the appearance of younger-looking skin, **improved skin strength & elasticity, and helps to hydrate and tone skin\***. A recent study using 1g of OptiMSM a day, taken orally, found significant improvements in wrinkles, firmness, hydration, and elasticity within just 4 weeks.<sup>9</sup> Research also suggests OptiMSM modulates key regulators in several areas that affect skin health and appearance including inflammation, skin barrier/protection and moisture.<sup>7</sup>

## We Don't Compromise on MSM, Neither Should You

For 30 years, OptiMSM has set the MSM standard for purity, safety & consistency in nutritional and topical applications for healthy aging, joint support, muscle recovery, and hair, skin & nails products.\*

[Contact us for more information.](#)

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## Latest Innovations - Balchem's Spray-Dried Lipid Powders



Elevate your culinary creations with Balchem's latest innovations in spray-dried lipid powders portfolio! Our unique and high-quality products will take your food and beverage game to the next level for a variety of markets and applications.

### New for Hot Beverage, Cold-Liquid Soluble and Frozen Dessert Applications

**Centennial™ 6802**, made with Sunflower oil and Buttermilk, has a fat content of 67-73% and cold-liquid solubility, making it perfect for all cold and hot beverage and frozen desserts applications. It also contains essential electrolytes such as potassium, sodium, and calcium without any added sugars. The carbohydrate source, lactose, is naturally present in buttermilk, making these products suitable for keto friendly diets.

If you are looking for a high-quality, cold liquid-soluble creamer without artificial color, our new **Richmix® 3807** is for you. With 36-40% fat content and no artificial color or flavor, this cold liquid-soluble creamer is the perfect choice for adding to iced coffee, smoothies, or frozen desserts. Richmix 3807 also provides a rich and creamy mouthfeel that will certainly take your customers favorite summer products to the next level!

Looking for a clean label, plant-based coffee creamer that doesn't sacrifice on taste? Then try Our **VitalBlend™ Oat 5003 NG**. Made with Oat Bran, it has a high fat content of 48-52% creating a smooth, sweet, and creamy vanilla oat flavor profile that's perfect for adding to your favorite coffee or tea. Plus, it creates a white froth that gives your beverage a delightful finish. Choose our VitalBlend Oat 5003 NG for a delicious and sustainable coffee creamer option that's sure to impress.

### New for Savory Applications

**Centennial™ 6803**, made with Coconut and Buttermilk, has a slightly lower fat content of 66-70% and a higher melt-point oil making it a perfect ingredient for baked goods, cheese sauces or other savory applications. It also contains essential electrolytes such as potassium, sodium, and calcium without any added sugars. The carbohydrate source, lactose, is naturally present in buttermilk, making these products suitable for keto friendly diets.

### New Medium Chain Triglyceride Nutritional Powder

You don't want to miss on **VitalBlend™ MCT 7202 NG**. This is our newest premium Medium Chain Triglyceride (MCT) spray dried lipid powder! With 73-77% fat, sourced from palm oil and primarily C8:0 (Caprylic acid) and C10:0 (Capric Acid), the perfect ingredient to enhance your products' texture and taste, while providing efficient energy source and supporting a healthy lifestyle. VitalBlend MCT 7202 NG can be used in Food and Beverage as well as Nutraceutical applications.

At Balchem, we take pride in providing the highest quality products that exceed our customers' expectations. Try these new products today and discover the endless possibilities of these exciting new spray-dried lipid powders! If you're interested in learning more about Balchem's latest innovations in spray-dried lipid powders, please [click here to request a sample](#), or contact your Balchem sales representative today.



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## SCIENCE UPDATE

### Balchem Corporation Partners with ILSI to Advance Science and Research

We are thrilled to announce that Balchem has partnered with the International Life Sciences Institute (ILSI), an international non-profit organization dedicated to improving health, well-being and environmental sustainability through the power of science.

For the past 45 years, ILSI has been a champion of multi-disciplinary and multi-sectoral research, tackling complex scientific and health challenges through international cooperation. Their mission aligns with our commitment to advancing and delivering scientific knowledge and promoting a healthier future.

Balchem will be supporting ILSI's work on the [Applications of Globally Harmonized Nutrients Research Project](#), which aims to introduce published algorithms for nutrient bioavailability and help to better characterize the specific impact that so-called anti-nutrients such as oxylates can have on mineral absorption. **Once applied to nutrient balance sheets, this will allow for estimates on the prevalence of inadequate calcium intake using bioavailability-adjusted requirements. This work will provide valuable insights which can be used to aid efforts in nutrient labeling globally,** and aid in the development of national and regional strategies for improving nutrient deficiencies.

Balchem is committed to supporting nutrition science and research. We believe **this partnership will help us to make a significant impact on the global health landscape.**



### Gaining a Mental Edge

How VitaCholine® Activates the Mind and Propels the Body

[Watch the Replay](#)

### Spring into Action with OptiMSM®

Maintaining Mobility and Joint Health for All Ages

[Watch On-Demand](#)

## MARKET & CONSUMER TRENDS

### Focus on Sports Drinks

Now that summer is almost upon us, people look for cool liquid refreshment! Many athletes, including weekend warriors turn to sports drinks to provide hydration that replaces electrolytes lost in sweat.

**Did you know that in just the “brick and mortar” retail market alone, sports drinks generate nearly \$6 billion in annual sales?\*** However, the biggest and long-standing players in the market with long ties to sports are declining.

Sugar-free, low-calorie varieties such as Prime, Electrolit, Gatorlyte and Biosteel are growing with their emphasis on simpler, healthier, better-for-you ingredients. If you watch the NHL playoffs, you will quickly see hockey players hydrating with LOTS of bottles of Biosteel!

When it comes to **cool, new flavors for beverages**, there is one you might not have heard from that comes from Asia! According to Tastewise, “yuzu”, is in the early life cycle stage, but it has shown significant growth in social mentions over the last year, making it a trending flavor iced-tea drinks. As quoted by from allrecipes.com in Tastewise, [All About Yuzu. What Is It and What Does It Taste Like?](#) (allrecipes.com)

“This indigenous fruit from Asia, which tastes like the cross between a lemon and mandarin orange, has seen a resurgence in popularity thanks to its versatility (it’s used in sweet and savory dishes), seasonality (it’s an excellent way to bring a summer flavor to colder months), and general consumer interest in widening their produce horizons.”

\*Source: Nielsen xAOC latest 52 weeks ending 4/22/2023



## Upcoming Events & Webinars

### BevNet

June 14-15, 2023 | New York, NY | [Request a meeting with us](#)

### International Society of Sports Nutrition (ISSN) Annual Conference

June 15-17, 2023 | Fort Lauderdale, FL | [Request a meeting with us](#)

### Reciprocal Meat Conference

June 25-28, 2023 | St. Paul, MN | [Request a meeting with us](#)