LEHVOSS Nutrition Solutions to Support Women's Health





Contents

- OptiMSM® for Beauty and Healthy Aging
- Bacognize® for Restorative Sleep and Active Cognitive Lifestyle
- PureSea® and Omega-3 concentrates for Pregnancy
- Keeping skin healthy: Pomella®, Naticol® and HAPLEX®Plus
- Advantages Offered by Our PureWay Liposomal Range
- Gingerize® and Pomella® for digestive and gut health
- PureSea® and Menopause
- The "Must Have" Essentials by LEHVOSS
- Veri-te® Resveratrol: A Key Ingredient for Skin Care
- References



Introduction to "Solutions to Support Women's Health"

According to Nielsen (2020) by 2028, women will own 75% of the discretionary spend, making them the world's greatest influencers. To truly connect with women, brands need to engage with them in ways that are meaningful and help influence a healthier lifestyle. They can do this by



creating clearer labels which should provide more product and ingredient transparency, making being healthy faster and easier.

Moreover, growing women's empowerment, a rising geriatric population, and an increasing number of working women are supporting the market growth. The global women's health and beauty supplements market size was valued at USD 53 billion in 2020 and is expected to grow at a compound annual growth rate (CAGR) of 4.9% from 2021 to 2028. Rising awareness levels about health and wellness along with the growing adoption of an active lifestyle are expected to boost product demand.

In addition, the COVID-19 pandemic has boosted the awareness of physical, mental, and emotional health and increased the implementation of self-care among consumers in general. This, in turn, has increased the adoption of health and beauty supplements¹

LEHVOSS Nutrition offer a wide range of ingredients to support women's health, from OptiMSM® that promotes beauty from within, healthy aging and active mobility, including joint support, ligament and muscle health to Bacognize® for emotional wellbeing, alertness, and quality of sleep. Additionally LEHVOSS offers key branded ingredients such as Pomella®, Naticol® and HAPLEX®Plus to support skin and gut health for robust opportunities in subcategories of women's nutrition and wellness.

Something else to consider is pregnancy, which is one of the most important times in a woman's life. It can be filled with both excitement and uncertainty, and a big responsibility for a woman to choose how best to support herself and her future child.

The positive role of Omega-3 fatty acids during pregnancy is well known and supported by a great amount of science. Our <u>Golden Omega®</u> fish oil concentrates along with exciting plant-based and vegan alternatives such as <u>PureSea®</u> and <u>Benexia Xia® Oil</u> support women pre, during and post pregnancy.

Let's dive into the details of our branded ingredients to see how they can help create innovate and interesting new formulations targeting women's health.





OptiMSM® for Beauty and Healthy Aging

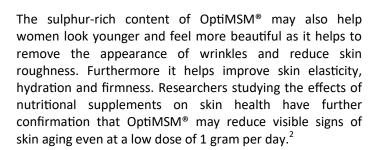




oxidative stress protects joints, helps the body recover from strenuous activity, boosts immunity, and helps users stay mobile and age well.

Choose OptiMSM® as the only branded form of MSM manufactured in the U.S. in a single-purpose production facility and purified through a proprietary multi-stage distillation process, which removes impurities by utilizing unique boiling points to isolate the MSM molecules. Distillation also guarantees low moisture content, reducing the risk of micro-contamination and degradation.

Women experience higher rates of muscle and joint decline as they age compared to men. This means that they may require extra supplementation of the nutrients needed to preserve connective tissue. OptiMSM® is one product that can provide these nutrients as it is rich in sulphur. This is an important mineral that helps to support and preserve connective tissue in the body, making it very effective in enhancing overall muscle, ligament, and joint health.



Furthermore, research suggests that OptiMSM® protects the body from oxidative damage by increasing the body's natural antioxidant capacity so that it can neutralize damaging free radicals. The decrease in inflammation and







Bacognize® for Restorative Sleep and Active Cognitive Lifestyle

Getting a good night's sleep helps boost your mind and mood, plus it may help prevent health problems. Women are more likely than men to have insomnia and other sleep problems due to changing hormones during the menstrual cycle, pregnancy, and menopause.



Improvements in sleep can also impact wellbeing, mood and immune health allowing the primary household influencers to stay at the top of their game.

Mental acuity to manage kids testing the waters with what they can get away with and waking up alert, rejuvenated, restored, and ready to tackle the day — study showed significant improvements in alertness upon waking with Bacognize® and it is no surprise that a restorative nights' rest led to improved mood / emotional wellbeing and general health as well. In addition, bacopa is used as an adaptogen to bring homeostasis and restore vitality in the body.



A study published in 2021 using <u>Bacognize</u>, a natural standardized extract derived from *Bacopa monnieri*, reported numerous findings in emotional and mental wellbeing, alertness, focus, impact on sleep, stress, and other quality of life markers. In particular, there were improvements in emotional wellbeing, general health and bodily pain subscale scores.

An analysis of changes in hormone concentrations over time also revealed Bacopa monnieri was associated with reductions in slgA, sAA, and differences in morning concentrations of salivary cortisol between the two groups (as evidenced by mostly decreased concentrations in the placebo group).³

In addition, Bacopa is commonly used as an adaptogen supporting cognitive enhancement, memory, focus, attention, mood, emotional health, and stress. Clinical research on Bacognize® demonstrates its benefits for cognitive health (focus, memory and attention) linked to three major neuroprotective mechanisms; including neurotransmitter receptor (serotonin) binding activity and antioxidant capacity.^{4,5}







PureSea® and Omega-3 concentrates for Pregnancy



odine is an essential nutrient that is required throughout life for both men and women. However, it plays a greater role in women's health generally and can be needed in higher levels during specific times such as pregnancy and breastfeeding.

During this time, women are recommended to increase their daily intake to support the increased demand. Despite this, recent data suggests that almost half of all women in the UK could be classed as deficient, and that is without taking into consideration pregnant and breast-feeding women who it is suggested need additional iodine.

During pregnancy, iodine is essential for foetal brain development. Therefore, more iodine may be needed within the diet to account for the additional requirements of both mother and baby. This is supported by the World Health Organisation (WHO).

lodine is also continuously required following pregnancy, during breast-feeding and throughout childhood to ensure optimal brain development and to ensure normal development. <u>Download here</u> our Pregnancy Scientific Review paper.



PureSea®

The most common sources of iodine are found predominantly in white fish, shellfish and dairy. However, access to iodine from these sources can be problematic if the mother has allergen issues, is vegan, or is generally reducing meat and dairy intake. A great solution that is naturally rich in iodine is seaweed. This makes PureSea gold-standard, sustainable seaweed the ideal ingredient for your pre, during and post pregnancy supplements.

Golden Omega®

It is widely known that omega-3s offer a number of benefits during pregnancy and breastfeeding, including supporting brain and eye development in babies and helping to prevent preterm birth. This is further validated by EFSA approved health claims.

Our Golden Omega® fish oil range includes high concentrated DHA grades which are ideal for pregnancy and breastfeeding formulas. Golden Omega® fish oils are high quality omega-3 concentrates up to 750mg/g EPA + DHA combined, produced from pure pelagic fishes from the South Pacific, certified by Orivo for transparency and traceability.

Benexia® Xia Oil

We also offer a great solution for vegans: our plant based <u>Benexia® Xia Oil</u> provides an excellent source of ALA (Alpha Linolenic Acid) for maintenance of normal cholesterol levels which are important during pregnancy. Furthermore, women on vegan diets can supplement their food with a balanced source Omega-3/Omega-6 from a high quality, researched, and sustainable cold-pressed chia oil.⁶

It is well known that essential minerals play an important part during pregnancy for several reasons: Folic acid prevents neural tube defects; Iron helps a baby's growth and development; Magnesium contributes to normal energy-yielding metabolism and has a role in the process of cell division.

Therefore, making our high quality <u>minerals</u> perfect to use in combination with our key branded products for your complete pregnancy food supplement solutions.







Keeping skin healthy

There is no doubt that we all want to look younger and now more than ever we are able to accomplish such ambitious dreams with many researched and formulated ingredients. Whether the aim is to protect from oxidative stress, delay aging, or boost healthy hair, skin and nails, new and emerging science makes the beauty area more interesting by combining proven traditional benefits with new applications in the nutricosmetics arena, allowing interesting new-finished product developments.

Pomella®

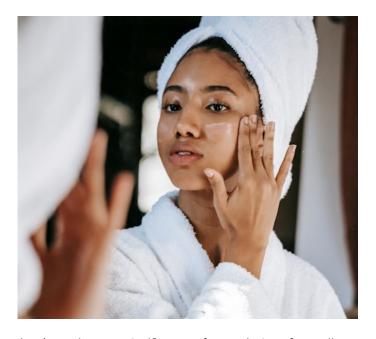
Antioxidants have continued to offer notable opportunities in skin health support. A <u>study</u> (2014) showed <u>Pomella®</u> pomegranate extract, ranked highest in antioxidant activity across a number of assays including ORAC, TEAC, FRAP and DPPH compared to 26 other antioxidant products. Pomegranate supplements (Pomella®) with high punicalagins content showed high antioxidant activity, whereas those high in ellagic acid showed the lowest.

Notably, Pomella®'s punicalagins have been shown to inhibit the formation of advanced glycation end products (AGEs), which are markers responsible for oxidative stress. The same glucose that provides energy for the body's cells can also react with proteins, including the skin's collagen. The resulting AGEs contribute to collagen cross-linking (which causes wrinkles), inflammation, inhibited skin cell growth, and accelerated aging. 8-11

Furthermore, Pomella® has been shown effective at protecting human skin fibroblasts from cell death following UVA an UVB exposure, while increasing the intracellular antioxidant capacity, and reducing generation of intracellular reactive oxygen species (ROS) after UV exposure. A new human clinical study showing Pomella®'s positive benefits on skin health is pending publication.

Naticol®

Naticol® is high quality fish collagen peptides produced from fish skins through a unique enzymatic hydrolysis process. It has clinically demonstrated its role as an ingredient in the anti-aging application for many years, with 3 different studies showing improvements in skin firmness and wrinkle reduction (with as low as 2500mg daily



dose), making Naticol® a perfect solution for collagen peptide-based healthy ageing products designed for daily consumption. 13,14,15

HAPLEX®Plus

It is well known that hyaluronic acid and collagen complement and support one another. Hyaluronic acid helps collagen by providing a moisture rich environment where collagen can stretch without breaking.

While collagen works on the skin firmness, hyaluronic acid nourishes and hydrates the collagen filling the free space of the skin matrix with water and giving it a fuller, firmer and youthful appearance.

Clinical studies suggest that oral supplementation of HAPLEX®Plus a high purity, food grade Sodium Hyaluronate has proved to be very effective, with statistically significant results on the parameters of skin moisture and skin elasticity.

On top of this, vitamin C is an antioxidant, meaning it protects skin cells from damaging free radicals caused by UV exposure which is all validated by EFSA approved health claims.





Advantages Offered by Our PureWay Liposomal Range

Liposomal PureWay-C® offers true Liposomal Vitamin C, mixed with the same proprietary fatty acid formula from the scientifically proven PureWay-C® standard grade enabling better delivery, absorption and uptake within the body. Vitamin C is known to promote collagen production, which has the potential to thicken the dermis, diminish fine lines, and improve skin firmness.

Plus it benefits from EFSA Approved Heath Claims related to the normal function of immune and nervous system, blood vessels, bones, cartilage, gums, teeth, skin, energy-yielding metabolism, protection of cells from oxidative stress, reduction of tiredness and fatigue, and increases iron absorption.

Not only that, our PureWay range offers multiple ingredients for to suit most solutions including <u>PureWay™</u> <u>Multi-Vitamin</u> and <u>PureWay™ D (Vitamin D3)</u>.



Our <u>PureWay™ Multi-Vitamin</u> offers a high quality multivitamin complex that includes the essential B vitamins plus A, C, D, E, and K. This combination delivers a range of EFSA



Approved Health Claims, with an inclusion of just 200 mg of this blend.

<u>PureWay™ D</u> is a premium Vitamin D3 that relates to multiple Approved Health Claims by EFSA including its positive effects on the absorption/utilisation of calcium and phosphorus, and blood calcium levels, plus the maintenance of normal bones. This may help with symptoms of menopausal and post-menopausal women.

In navigating the diverse world of liposomal products, the quest for superior ingredients is key. Our PureWay™ range distinguishes itself by utilising genuine liposomal technology, Liposomax™. This proprietary process avoids alcohols or solvents, and it is produced with Non-GMO, Vegan, Halal, and Kosher sunflower lecithin, reassuring its quality.

Gingerize® and Pomella® for digestive and gut health

As part of our PlantNutra® range we offer Gingerize®, a signature ingredient by Verdure Sciences® which is a high quality, botanical ingredient standardised to 15% gingerols and shagoals by HPLC. Ginger is well known and has a very long history of use, with studies supporting nausea and digestion, dysmenorrhea, gut health and metabolic health.

Several studies support the role of ginger in mitigating dysmenorrhea (painful menstrual periods) as well as supporting overall women's health.

The antioxidant function from Pomella®'s powerful polyphenols work with the body to support health benefits often impacted by oxidative stress, contributing to overall wellness. The health benefits of pomegranate have long been associated with the high content of antioxidant polyphenols, in particular ellagitannins such as punicalagins and their gut-derived metabolites, urolithins.

The symbiotic relationship between phenolic compounds and gut microbiota have gained much attention due to their relevance to bioavailability and human health.







PureSea® and Menopause

Taking control of your menopause in a natural and healthy way can be achieved through a wide range of nutrients, one of which is PureSea, gold-standard, seaweed. This provides natural iodine which may help with various symptoms associated with all stages of the menopause.



Hypothyroidism (an underactive thyroid) is a condition in which the thyroid gland is unable to produce the thyroid hormones required for normal health. The group most at risk of this is middle-aged women — it is at this age that women may also start to go through the menopause. This often leads to misdiagnosis since hypothyroidism and the menopause share some similar symptoms.

Since the transition into hypothyroidism and the menopause go hand in hand, it has led researchers to believe that there might be a connection between perimenopause and thyroid function. Click here to read more about the connection between the menopause and thyroid health, and how some menopause symptoms may be affected by hypothyroidism.

Women spend so much time looking after others that they rarely take the time to look after themselves. Everything a woman will do in a day - the food she eats, the exercise she chooses, sleep, stress, and personal time (or lack thereof) – will affect her future health. LEHVOSS Nutrition offer a number of interesting solutions which can be easily incorporated to trendy health formulations targeting women's health and nutrition.







Veri-te® Resveratrol: A Key Ingredient for Skin Care

LEHVOSS Nutrition

Resveratrol is essentially a gold mine of anti-aging effects. It is a naturally occurring substance most commonly found in grapes, blueberries and other plants, but more specifically it is part of a group of compounds called polyphenols. These polyphenols are full of antioxidants and other benefits for your skin.

With more than 17,000 published studies and over 270 human clinical trials (Pubmed, May 2023), Resveratrol is considered one of the most well-investigated compounds applied in food and beverages, dietary supplements and cosmetics.



How does Resveratrol work? As our bodies combat daily stress and age, mitochondrial function can become slowly compromised leading to impairment in many bodily functions including blood pressure, attention and concentration, skin health, bone health, eye health and joint health.



The latest Resveratrol research highlights not only its action as an effective antioxidant, but also how it can exhibit a number of complementary functions on cellular and systemic levels, leading to a wide range of beneficial health effects. Ultimately, Resveratrol can potentially help rejuvenate the mitochondria and counteract the negative effects of stress and aging.

In addition to this, Veri-te® is especially good for menopausal women, making it an important ingredient for healthy aging. A double-blind, randomised, placebo-controlled, two-period crossover study called RESHAW (Resveratrol Supporting Healthy Ageing in Women) was conducted over a 24-month period on 125 postmenopausal women (65 years average).

The objective was to evaluate the effects on brain health (cognition and memory), bone health (risk of fracture), cardiometabolic markers, and menopausal symptoms (mood, sleep quality and pain perception) in post-menopausal women with an oral dose of 75mg twice daily of Veri-te® Resveratrol.

The results showed improved cerebrovascular function and overall cognitive performance, improved mood and glucose metabolism, and reduced pain perception, bone loss and risk of bone fracture.⁶

<u>LEHVOSS Nutrition</u> offer <u>Veri-te®</u> which is a premium, natural and responsibly sourced form of resveratrol, produced using a sustainable and innovative yeast fermentation process. Veri-te® is free from contaminants and Novel Food Approved.





The "Must Have" Essentials by LEHVOSS



LEHVOSS Nutrition provide a carefully chosen selection of ingredients from our "must have" Essentials range, along with natural, plant-based solutions under our PlantNutra® brand. Among our essential offerings, we feature ingredients specially designed to meet the needs of the Women's Health market including Vitamin E, Inositol and PABA (P-Aminobenzoic Acid USP).

<u>Vitamin E</u> is a nutrient that performs as an antioxidant in the body and is backed by an EFSA Approved Health Claim related to the protection of cells from oxidative stress, therefore it may help the appearance of aging skin. <u>LEHVOSS Nutrition</u> offer both or a 100% plant-based <u>Vitamin E Succinate</u> from our <u>PlantNutra®</u> range.

Though often referred to as Vitamin B8 (part of the B-Complex), <u>inositol</u> is not a vitamin, but rather a type of sugar with several important functions. One of which, according to research, is its benefits on polycystic ovary syndrome (PCOS).¹⁷





Another ingredient considered as part of the B-Complex is <u>PABA</u> (P-Aminobenzoic Acid). Known as Vitamin B10, this organic compound, according to research, assists in the production of folate (Vitamin B9).

Studies in the 1940s and 50s found that taking PABA at daily doses ranging from 200 mg to 24 grams led to hair darkening and helped grey hair return to its original colour. The anti-greying results have been positive, despite the lack of sufficient research.¹⁸

According to research PABA does not tend to promote hair growth on its own, however, when combined with other key ingredients, such as MSM or Folic Acid, PABA can aid in the prevention of excessive hair fall, and encourage the formation of healthy hair growth in both men and women.







References

- 1) <u>Market Analysis Report "Women's Health and Beauty Supplements Market Size, Share & Trends Analysis"</u>, October 2021
- 2) Benjamin R, Muizzuddin N. "Beauty from within: Oral administration of a sulfur-containing supplement methylsulfonylmethane improves signs of skin ageing, February 2021. https://doi.org/10.1024/0300-9831/a000643
- 3) Lopresti A et al. <u>Effects of a Bacopa monnieri extract</u> (<u>Bacognize®</u>) on stress, fatique, quality of life and sleep in adults with self-reported poor sleep: A randomised, double-blind, placebo-controlled study. Jurnal of Functional Foods, Volume 85, October 2021, 104671.
- 4) Kumar et al. Efficacy of standardized extract of Bacopa monnieri (Bacognize®) on cognitive functions of medical students: A six-week, randomized placebo-controlled trial. Evidence-Based Comp Alter Med. 2016 Sep 15. Vol 2016 (Art ID 4103423): 8pgs. DOI: 10.1155/2016/41034232.
- Headapohl et al. Effects of Bacopa monnieri (Bacognize®) on memory and cognitive function in healthy older adults: A double-blind placebo-controlled study. Manuscript (unpublished)
- 6) Valenzuela R; et al. <u>Modification of Docosahexaenoic Acid</u>
 <u>composition of milk from nursing women who received Alpha</u>
 <u>Linolenic Acid from chia oil during gestation and nursing</u>
 <u>nutrients</u> 2015, 7, 6405-6424;doi:10.3390/nu/7085289 (2015).
- Pomegranate phenolics inhibit formation of advanced glycation endproducts by scavenging reactive carbonyl species: Liu W et al, 2014
- 8) Pomegranate (Punica granatum) extract and its polyphenols reduce the formation of methylglyoxal-DNA adducts and protect human keratinocytes against methylglyoxal-induced oxidative stress: Guo H et al,
- 9) Ma H et al 2019: Poster presentation in Vitafoods Europe. Geneva, Switzerland: Biological evaluations of skin protective

- effects of Pomella® extract on type-I collagen, DNA structure integrity, and human keratinocytes against oxidative and glycative stress
- 10) Pomegranate phenolics inhibit type I collagen cross-linking induced by glycative stress: Cai A et al
- 11) Pomegranate (Punica granatum) phenolics ameliorate hydrogen peroxide-induced oxidative stress and cytotoxicity in human keratinocytes: Liu C et al
- 12) Pacheco-Palencia LA et al. Protective effects of standardized pomegranate (Punica granatum L) polyphenolic extract in ultraviolet-irradiated human skin fibroblasts. J Agric Food Chem.2008 Jul 18. EPub 2008 Aug 22. DOI: 10. 1021/jf80053076.
- 13) Trial conducted by an independent laboratory pharmacy university/ UMR152, Toulouse, France (2019) unpublished.
- 14) Duteil L, Queille-Rousel C, Maubert Y, Esdaile J, Bruno-Bonnet C, Lacour J-P: <u>Specific Natural Bioactive Type I Collagen Peptides Intake Reverse Skin Aging Signs in Mature Women.</u>The Journal of Aging Research and Clinical Practice; Volume 5, Number 2, 2016.
- Duteil L., Queille-Roussel C., Bruno-Bonnet C. and Lacour J-P. <u>Effect of Low Dose Type I Fish Collagen Peptides Combined or not with Silicon on Skin Aging Signs in Mature Women</u>. Juniper Publishers 2018. Volume 6 Issue 4.
- 16) Thaung Zaw JJ et al. Long-term effects of Resveratrol on cognition, cerebrovascular function and cardio-metabolic markers in postmenopausal women, Clin 2021;40(3):820-829.
- 17) Dorina Greff, et al: <u>Inositol is an effective and safe treatment in polycystic ovary syndrome: a systematic review and meta-analysis of randomized controlled trials;</u> Published: 26 January 2023:
- 18) Katerina Yale, et al: Medication-Induced Repigmentation of Gray Hair: A Systematic Review: https://doi.org/10.1159/000504414



