

May 2024

“I’ll tell
you what
women
want. We
want to
sleep better,
we want
hotter sex
and we
want more
energy.”



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4 VIEWPOINT

Enter the microgenderome

Part of the explanation for why men and women experience conditions so differently may be related to the gender-specific differences in the male and female gut microbiota composition, as explained by industry insiders **Julia Wiebe** and **Susan Hewlings**.

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Dr. Sue's 7 nonnegotiable ingredients for women

Sue Kleiner unveils the top immutable nutrients female athletes need to achieve peak performance, from protein to calcium to omega-3s and brain-boosting choline.

22 FORE-MULATIONS

5 health concerns that manifest for postmenopausal women

Menopause can provide an opportunity for women to focus on big-picture health matters, **David Foreman** contends, and there are realistic natural solutions for postmenopausal concerns, from heart disease to bone loss, weight gain and cognitive decline.

Cover quote by **Ola Lessard**, managing partner, 9 Muses Marketing

5 PRODUCT POSITIONING

Enhancing supplement solutions to optimize wellness for women across middle stages

Forget one-size-fits-all vitamins. Women over 40 have unique needs, from heart health to stress management, writes **Steffi Neth**. She explores the booming market of targeted supplements designed to help women thrive in their 40s, 50s and beyond.

16 FORMULATIONS

Pressing pause on perimenopause

Having researched nutraceutical ingredients for many facets of women's health, professional work for formulator **Devon Gholam** suddenly took on a very personal meaning. Here she explores science-backed solutions to ease symptoms like hot flashes, anxiety and fatigue.

30 CHARLOTTE'S LIST

5 multitasking ingredients women's multivitamins may be missing

Look past bland multivitamins for women, urges **Charlotte Traas**. These targeted supplement ingredients can support heart, brain, skin and more, from bone-building K2 to mood-boosting lion's mane mushroom.



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If you couldn't make it to SupplySide East last month, didn't catch a session, or want to revisit the education sessions from the show, don't worry! We've got you covered.

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- + Maxobiome: The business case and science for microbiome ingredients
- + The state of animal nutrition: Insights for 2024 and beyond
- + Substantiating products for women: Building trust through science
- + The key ingredient: Leveraging functional ingredients to power F&B products
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- + FDA, supplement regulation and the 2024 outlook
- + FDA on kratom, CBD and mushroom supplements: Where formulation and regulations collide

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Enter the microgenderome

by Julia Wiebe and Susan Hewlings

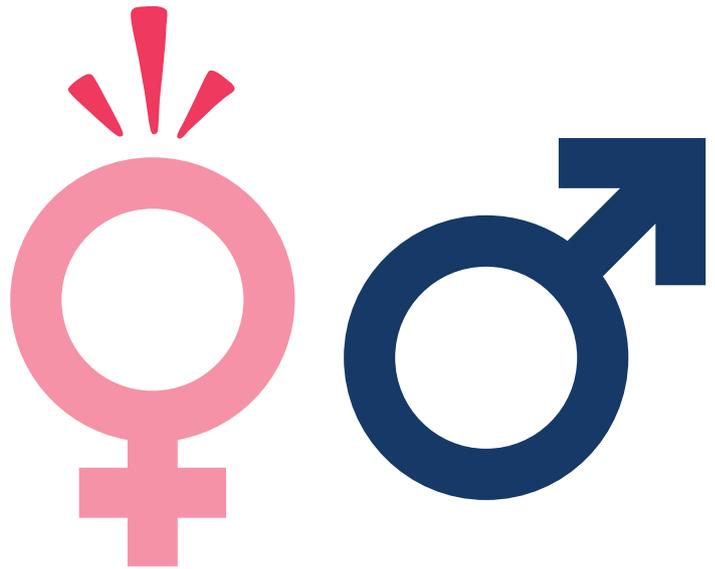
Awareness of — and concern about — mental health is on the rise, as is evidence that some conditions carry a different impact and expression across gender lines. Notably, women have shown about twice the lifetime rate of [depression](#) and [anxiety](#) when compared to men. Science is still catching up to all the complex reasons for this disparity, which may include factors ranging from genetics to environment.

“The differences in gender run far deeper than anatomy,” said David Foreman, who writes on menopause, page 22. “The differences in metabolism, hormones, body structure and size are just a few of the contributing factors driving the need for gender-specific research.”

THE ‘MICROGENDEROME’

Part of the explanation for why men and women experience conditions so differently may be related to the gender-specific differences in the male and female gut microbiota composition that influence mood and feelings of anxiety via the [gut-brain axis](#). Research indicates that [gender differences](#) in the gut-brain axis may contribute to the discrepancies in incidence of neuropsychiatric disorders between females and males.

“In this gut-brain axis, there is a third player — estrogen, a steroid-derived sex hormone that drives not only reproductive cycling, but also regulation of immunity, stress, anxiety and fear,” Monica Olivares Martin, R&D director for women and infant nutrition at Kerry, said. “Interestingly, estrogens can modulate and be modulated by gut microbiota, but still relatively few studies have explored them. Much of the research on the gut microbiome’s role in anxiety and fear processes has been conducted in male animal models, but researchers highlight how a more nuanced and precise understanding of the [role the gut microbiome plays](#) in both estrogenic



signaling and neuropsychiatric disorders could be immensely impactful for women’s health.”

Kara Landau, aka The Prebiotic Dietitian, added more context. “With a growing interest in the [role gender plays](#) on differences in the microbiome, the term ‘[microgenderome](#)’ has been used to encompass the science of the variations found and the interaction male and female sex hormones play with the microbiota. Even the bacteria-to-human cell ratio is different between genders, with women having a bacteria-to-human cell ratio of 2.2 compared to men of only 1.3.

“Given there are also studies showing differences in bacterial makeup in premenopausal and postmenopausal women, it is evident that both gender and life span stage, whereby sex hormonal changes occur, are all part of what shape the discrepancies between how illnesses present in males and females,” she said. “Honing in on these differences, and seeking solutions that address those that are associated with poorer mental health, could be a valuable tool for supporting mental well-being in the future.” ♦



Julia Wiebe holds a doctorate in molecular biology from the Technische Universität Munich and an MBA from the International University Germany. She is the managing director of [Red otc](#), a company of German-based ingredient supplier Finzelberg.



Susan Hewlings Ph.D., RD, is VP of research affairs at [Radicale Science](#).

Both are members of the Women In Nutraceuticals (WIN) science committee.

Enhancing supplement solutions to optimize wellness for women across middle stages

by Steffi Neth

For adult women in their 40s, 50s and beyond, nutritional supplement needs go well beyond perimenopause- and menopause-specific targets to provide support for a variety of health and wellness concerns during these maturing years. Fortunately, a welcome shift is occurring in the market's offering for this important and often overlooked demographic — as well as for the women's health category overall.

According to a recent industry trends report from [SPINS](#), women's health is gaining a greater well-deserved share of the spotlight after years of being sidelined in favor of men's products (with a large credit to women entrepreneurs gaining traction in the space). Within this broader trend of women's health product growth, brands are offering maturing adult women a wider range of supplements targeting various aspects of benefits, including bone health, heart health, cognitive function, stress management and skin care support, among others.

This product diversity reflects the multifaceted nature of women's health needs as they age, and also presents increased opportunities for brands considering expanding or developing products for this audience. With greater life experience and a better understanding of their individualized evolving wellness needs as they age, mature female consumers are increasingly likely to seek



more customized supplements and products tailored to their specific areas of concern instead of a traditional multivitamin approach.

KEY SUPPLEMENTS AND HEALTH TARGETS FOR WOMEN'S MIDDLE STAGES

The age 40-50+ women's segment faces unique health needs that often drive their choices in supplementation beyond the typical menopause-related support for this age group. Some of the key target supplement indications and wellness needs of this demographic include:



HEART AND CARDIOVASCULAR HEALTH

– Cardiovascular disease (CVD) becomes a more pressing concern for women as they age. Omega-3 fatty acids, like those found in fish oil supplements, are [click to go!](#)



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Product positioning

known for their heart-protective benefits, including [lowering](#) triglycerides, [reducing](#) inflammation and [supporting](#) healthy cholesterol levels. Coenzyme Q10 ([CoQ10](#)) and [magnesium](#) are also popular supplements for heart health support.



JOINT HEALTH – Joint pain and stiffness are common complaints among aging women, especially those with arthritis or other inflammatory conditions.

Glucosamine and chondroitin supplements are popular choices for maintaining joint health and mobility by [supporting](#) cartilage repair and reducing inflammation. Turmeric and curcumin are also valued for their [reported](#) anti-inflammatory properties.



COGNITIVE FUNCTION – As women age, cognitive health often becomes a greater priority, with concerns about memory loss, cognitive decline and Alzheimer's disease. Omega-3 fatty acids, particularly docosahexaenoic acid ([DHA](#)), can [contribute](#) to brain health and may help maintain cognitive function. Other supplements such as [Ginkgo biloba](#) and [ginseng](#) are also reported to support memory and mental clarity.



MOOD ENHANCEMENT AND STRESS MANAGEMENT – As maturing women juggle multiple responsibilities and navigating life in their 40s and 50s,

interest rises in supplements to help with energy, mood, stress, sleep and overall emotional well-being at this stage. Ashwagandha (*Withania*

somnifera), an ancient adaptogenic herb, is known for a range of [potential benefits](#), including reducing stress, anxiety and symptoms of depression, as well as improving sleep and libido. Another adaptogenic herb, *Rhodiola rosea*, is also known for its claimed [benefits](#), including treatment of stress-induced fatigue and depression. Mushrooms like lion's mane (*Hericium erinaceus*), cordyceps (*Cordyceps sinensis*) and reishi (*Ganoderma lingzhi*) are increasingly being incorporated into supplement regimens to [help](#) manage stress and promote mental clarity.



SKIN HEALTH AND AGING – Aging skin is a common concern for women in their 40s and 50s, characterized by wrinkles, dryness and loss of elasticity. Collagen

supplements are widely sought after for their potential to improve skin hydration, elasticity and overall appearance. Antioxidant [vitamins](#) such as C and E, as well as [hyaluronic acid](#), are also valued for their reported skin-nourishing benefits.



GUT HEALTH – Digestive issues such as bloating, constipation and irritable bowel syndrome (IBS) may become more prevalent with age for women. Probiotic

supplements containing beneficial bacteria like [Lactobacillus](#) strains can help restore gut flora balance, improve digestion and support immune function. Prebiotics, soluble fiber and digestive enzymes are additional supplements that may aid in gut health. ↓

MARKETING TO WOMEN

HOW BRANDS SHOULD CONNECT WITH WOMEN

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MORO ORANGE VARIETY, THE NATURAL APPROACH TO WEIGHT CONTROL

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Avoid stereotypes and clichés, and instead, **emphasize empowerment** and embracing life at every stage.

BRAND AND MARKET POSITIONING CONSIDERATIONS

From a marketing perspective, developing supplement products for the modern adult women's segment requires a nuanced approach in marketing, positioning and package design. Consider some of these key points:

HEALTH BENEFITS TAILORING – Understand the specific health concerns and needs of women in the 40-50+ age group. This demographic may be particularly interested in supplements that support bone health, heart health, cognitive function, hormonal balance and overall vitality. Tailor product formulations to address these concerns effectively.

SCIENCE-BACKED FORMULATIONS – As a mature demographic is likely to be more sophisticated about understanding product ingredients, ensure that supplement formulations are backed by scientific research and contain high-quality, efficacious ingredients, whenever possible. Transparency about the formulation and the rationale behind ingredient choices can help build trust with consumers.

TARGETED MESSAGING – Tailor marketing messaging that resonates with the lifestyle and aspirations of women in this age group. Focus on themes such as active aging, maintaining vitality, enhancing quality of life and achieving overall wellness. Avoid stereotypes and clichés, and instead, emphasize empowerment and embracing life at every stage.

PACKAGING DESIGN – Opt for packaging that conveys professionalism, reliability and sophistication. Consider using colors, fonts and imagery that appeal to the target demographic without resorting to stereotypical gender-based color schemes. Colors appear to be more muted for this age group, but exceptions are always possible. Clear, informative labeling highlighting key benefits and features can aid in decision-making for consumers.

PERSONALIZATION – Recognize that women in their 40s and 50s are a diverse group with varied lifestyles, health goals and preferences. Offer a range of supplement options to cater to different needs, whether it's vegan formulations, gluten-free options or specific ingredient preferences. ↓

MARKETERS:

7 NEW WOMAN-CENTRIC HEALTH CONDITIONS

SUPPLEMENTS NOW TARGET LIBIDO, PERIMENOPAUSE, SPORTS AND MORE.

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Foster a sense of community around your brand by creating platforms for women to connect, share experiences and support each other on their wellness journeys.

Personalization options, such as customizable blends or dosage forms, can also enhance product appeal.

EDUCATIONAL CONTENT

– Provide educational resources and content to empower women to make informed decisions about their health and wellness at this stage. This could include blog posts, articles, infographics or videos discussing topics related to nutrition, supplementation, fitness and healthy aging. Position your brand as a trusted authority in women’s health.



COMMUNITY BUILDING – Foster a sense of community around your brand by creating platforms for women to connect, share experiences and support each other on their wellness journeys. This could involve social media communities, online forums or offline events tailored to the interests and concerns of the target demographic. By taking these factors into account and adopting a customer-centric approach, brands can effectively position their supplement products for this modern adult women’s segment, meeting their unique needs and preferences while building long-term brand loyalty. ♦



Steffi Neth, VP of marketing at Lief Labs, is a dynamic leader with 20 years of expertise in marketing, creative direction and brand design. As a key member of the company’s senior leadership team, she heads up the marketing department (which she built) with finesse and vision. Driven by a passion for holistic wellness, Neth’s personal spirit mirrors her professional endeavors. Based in Valencia, California, [Lief Labs](#) is a premier formulation and product development innovator and manufacturer of dietary supplements.



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vs-corp.com

*may vary by botanical ingredient



Dr. Sue's 7 nonnegotiable ingredients for women

THE NUMBER OF STUDIES ON FEMALES PALES IN COMPARISON TO MALE-CENTRIC STUDIES, BUT WE STILL HAVE ENOUGH TO GO ON TO RECOMMEND THESE MAGNIFICENT SEVEN NUTRIENTS FOR WOMEN.

by Susan Kleiner



Coaches must have certain unailing strategies that athletes can rely on as effective. While coaches must always be prepared with alternate strategies (or multiple tools in the toolkit), science often can dictate at least a few nonnegotiables. In the case of nutrition – of course unless the consumer is allergic or these make her sick – my list is negotiable. But short of that, frankly, I'm pretty firm on my selections.

Supporting female health and performance (without health, a person doesn't get much performance), these are my top seven nonnegotiable ingredients. Side note: We're talking ingredients here. Otherwise, energy would be at the top of the list. Also, iron supplementation is commonly needed in menstruating females but is not recommended without an understanding of iron status. For this reason, it is not a nonnegotiable supplement.

PROTEIN: While the number of studies on females pales in comparison to male-centric studies, protein is undeniably a key requirement for physiological adaptations to exercise. In other words, when it comes to enhancing performance – without enough protein, people are wasting their time in the gym.



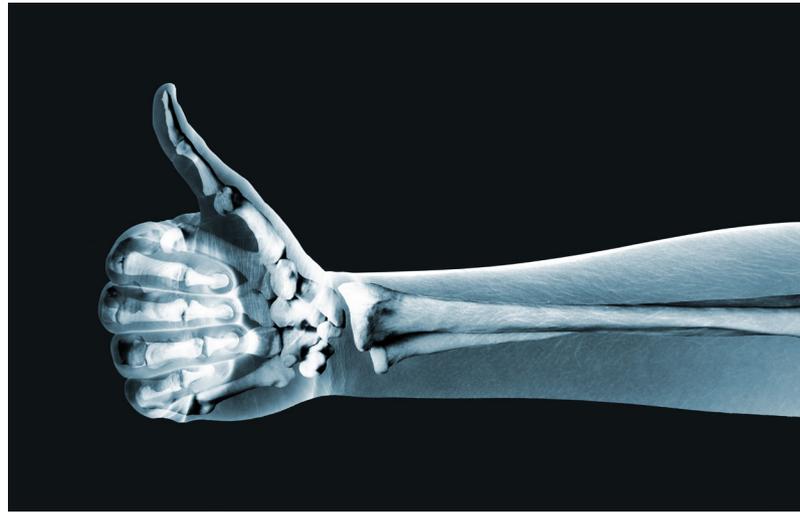
We lack the kind of data that would give females a more personalized approach to dietary intakes based on life cycle and menstrual cycle, hormonal contraceptive use or those with perturbations of the menstrual cycle.

What we can say with confidence, though, is that healthy, eumenorrheic, recreationally active females [should consume](#) at least 0.8 grams of protein per pound of body weight daily. If a woman is restricting calories, she should move up to at least 1 g per pound of body weight daily. High-quality protein should be consumed as soon as possible after exercise; and if she is low in protein and/or energy for the day, she may benefit from a small dose of protein before sleep.

CREATINE: The benefits for creatine supplementation in females range enhancements in strength, hypertrophy, exercise performance, energy, cognition, mood, memory, bone health and even fertility. According to a [position paper](#) on female athletes from the International Society of Sports Nutrition (ISSN), "Compared to men, females exhibit 70-80% lower endogenous intramuscular phosphocreatine stores and consume considerably lower amounts of dietary

↓
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Vitamin D is also associated with higher muscle strength, **reduced injury rates** and better sports performance.



creatine.” Current evidence supports consistent recommended dosage amounts for males and females.

VITAMIN D: During winter months, vitamin D concentrations in athletes are commonly low in a wide range of sports, as they are year-round for indoor sport athletes. Achieving peak bone mass in younger athletes and maintaining bone mineral density in all female athletes is a concern, along with low energy availability; low carbohydrate and protein intake; and low intakes of vitamin D, calcium and other bone-building nutrients.

Since female athletes commonly have low vitamin D intakes, supplementing is key not only for bone health, but vitamin D is also [associated with](#) higher muscle strength, reduced injury rates and better sports performance. In addition, vitamin D [plays an active role](#) in immune function, protein synthesis, muscle function, cardiovascular function, inflammatory response, cell growth and musculoskeletal regulation.



CALCIUM: Similar to vitamin D, calcium consumption is low in female athletes, and dermal losses can be significant in endurance athletes. Low vitamin D and calcium, along with low energy availability and low protein, have been associated with increasing risk for stress fractures. Studies suggest that the prevalence of stress fractures [decreased](#) when athletes were supplemented daily with 800 IU 25(OH)D and 2,000 mg calcium.

CITICOLINE: Choline is an often-ignored B vitamin. Citicoline is a form of choline that is easily taken up by the body and rapidly converted to phosphatidylcholine (PC), a critical component of brain health. Citicoline also supplies choline (half of the most abundant neurotransmitter in the body) with acetylcholine, which works every time a person thinks and moves, 24/7. Suboptimal intakes of choline are present across many gender and life-stage subpopulations, as well as in pregnant women in the U.S. ↓

WOMEN IN BUSINESS: WHERE'S THE MONEY?

WOMEN ARE STARTING COMPANIES, RUNNING COMPANIES,
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Compared to men, females exhibit 70–80% lower endogenous intramuscular phosphocreatine stores and consume considerably lower amounts of dietary creatine.

– ISSN position paper

The main source of choline in the diet is from egg yolks, and it is very difficult to consume adequate choline without consuming multiple eggs daily and supplementation. Daily choline supplementation has been [shown](#) to enhance attention, focus, cognition, mood and memory.

OMEGA-3S: The [beneficial effects](#) of the long-chain omega-3 fatty acids EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) include controlling inflammation, supporting nervous system function, maintaining muscle mass after injury and improving training adaptation. These omegas also may offer select benefits for athletic performance and recovery.

Poor omega-3 fatty acid status has been [linked](#) to anxiety in the general population. A group of female collegiate athletes was studied for associations between omega-3 fatty acid status, anxiety and mental toughness. Both low blood and low dietary omega-3 fatty acid levels were associated with general but not sport-specific anxiety in these female collegiate athletes.

A [study](#) of male and female collegiate athletes demonstrated low intakes of dietary omega-3 fatty acids, which mirrors the rest of the U.S. population. [Other studies](#) corroborated these findings., especially among subjects consuming less than two servings per week of fatty fish.

Beneficial dietary omega-3 fatty acids can be boosted by:

1. Increasing fatty fish consumption to at least two servings/week.
2. Supplementing EPA and DHA via fish oil.
3. Supplementing EPA and DHA with algae-based omega-3.
4. Supplementing EPA and DHA through [Ahiflower oil](#), a natural plant-based source that's high in SDA (stearidonic acid) and omega-6 GLA (gamma-linolenic acid), which convert to DHA and EPA.

LIGNIN PREBIOTIC: Lignin is a bioactive plant polyphenol characterized by different chemical and structural properties. Although this fiber has low bioavailability, several in vitro [biological activities](#) include antioxidant, anti-estrogenic and anti-inflammatory properties.

[Benefits](#) of lignin include improved gut health, potential to modulate the gut-brain axis and decreased cardiovascular risk. Studies are ongoing investigating possible influence on chronic diseases and various cancers, such as breast cancer.

Gastrointestinal (GI) disturbances are common during training and competition, especially among endurance athletes and female athletes. Ground flaxseeds (flaxseed meal) are the richest source of dietary lignans in a natural form. A daily serving of 2.5 tablespoons of flaxseed meal is an [efficacious dose](#) that can appreciably minimize GI disturbances and support general well-being. ✦



Susan M. Kleiner, Ph.D., RD, CNS-E, FACN, FISSN, is owner of [High Performance Nutrition LLC](#), a consulting firm in Mercer Island, Washington. A trailblazer and internationally recognized expert on nutrition for peak performance, Kleiner is a communicator and consultant, educator and coach, co-founder of the [International Society of Sports Nutrition](#) (ISSN) and the author of 10 books, including the bestselling books [The New Power Eating](#), [The Good Mood Diet](#), and [Powerfood Nutrition](#).

Pressing pause on perimenopause

IN THIS HARROWING TALE, AN INGREDIENT SCIENTIST FINDS HERSELF AT THE INTERSECTION OF HER PROFESSIONAL AND PERSONAL LIVES – NAVIGATING THE UNKNOWN OF PERIMENOPAUSE.

by Devon Gholam

“Well, sh**,” I thought to myself as I realized perimenopause was taking over my body.

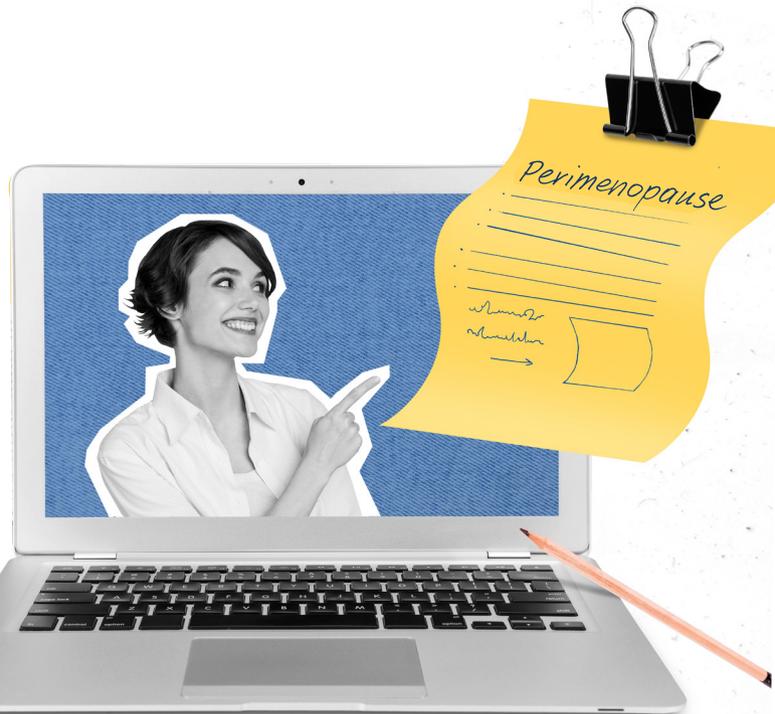
I was on the cusp of turning 45, with a full life and a seemingly normal amount of stress, but I wasn’t sleeping well and I was noticeably more anxious. After waking up from a night sweat, I suddenly understood I was facing the inevitable.

Fast-forward a couple weeks and I had my first true hot flash while awake. A checkup with my gynecologist confirmed my suspicions – I was entering the phase of life known as perimenopause. Having researched nutraceutical ingredients for many facets of women’s health, my professional work suddenly took on a very personal meaning.

THE PREDICAMENT WITH PERIMENOPAUSE – NO ONE TALKS ABOUT IT!

I was not prepared for this! But I’m not alone – in fact, more than 90% of women never received any education about menopause in school, according to [results](#) from a recent online survey. Additionally, 60% did not feel sufficiently informed about this natural transition.

Jean Marino, APRN-CNP, MSCP, IF, a women’s health nurse practitioner at University Hospitals in Cleveland, agreed. “I saw a gigantic need – not only for education, but treatment for both perimenopause and menopause,” the specialist in



menopause and women’s sexual health shared. “It is a time of huge fluctuations in hormones that impact everything.” She noted classes are commonly offered about puberty and childbirth, but very little education exists for women about menopause and the accompanying changes.

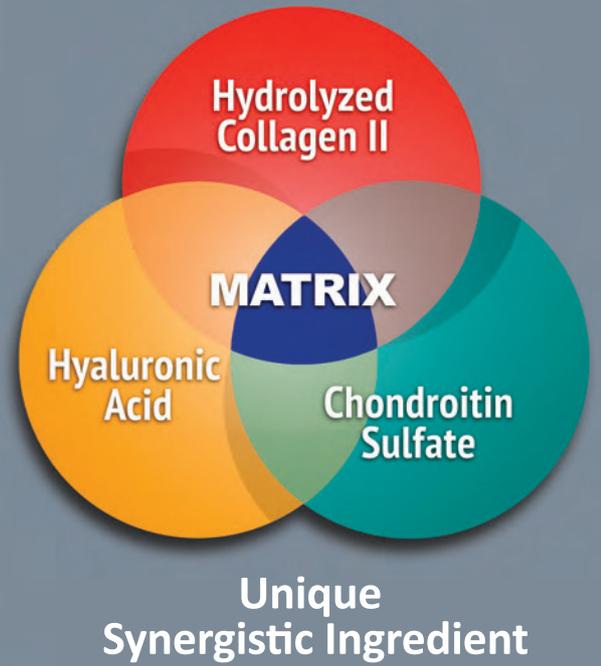
While perimenopause is considered a normal life event, taking medications or supplements is not about its treatment – rather, addressing unpleasant symptoms accompanying the transition.

“Women have estrogen receptors everywhere, so everything is impacted by the fluctuating hormones,” Marino maintained, adding that vasomotor symptoms are the most familiar earmark of perimenopause. She said many women are surprised to learn that other symptoms, like changes in mood, are quite common, and that many women can have unique issues like lack of energy, fatigue and low self-esteem.

“All right, Devon, time to get to work...”

Most ingredients for perimenopause aim to help balance hormones or address mental health. Many recent studies – specifically in perimenopausal women – evaluate the benefits of nutraceutical ingredients. Let’s explore some of them. ↓

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- *Increasing hyaluronic acid**

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Supplements are not about treating perimenopause – but about helping address unpleasant symptoms accompanying this transition.

ISO INGREDIENTS FOR PERIMENOPAUSE – ISOFLAVONES?

I learned a great deal about soy isoflavones in grad school, so phytoestrogens became my starting point for perimenopausal ingredients. The research has since come a long way. For instance, Menopause: The Journal of The Menopause Society, published a [meta-analysis](#) on the effects of soy isoflavones on hot flash frequency and severity. However, soy is not the only source of phytoestrogens – isoflavones also are present in red clover (*Trifolium pratense*).

In one [study](#) on red clover, isoflavones were subjected to cold fermentation with a proprietary mix of lactic acid bacteria cultures, and were evaluated for their impact on vasomotor symptoms versus a placebo in 59 perimenopausal women over a span of 12 weeks. Supplementation with the red clover isoflavones significantly reduced hot flash frequency and intensity after three months as measured by both skin conductance and self-reported results.

While no changes in cholesterol were noted in the previous study – presumably because parameters for all subjects were within normal range – red clover has been shown effective in reducing total cholesterol, according to a [meta-analysis](#) of studies conducted on perimenopausal and postmenopausal women. This is quite noteworthy, as hormonal changes during perimenopause can significantly impact cholesterol levels.

I'M JUST MAD ABOUT SAFFRON...

Saffron (*Crocus sativus*) extracts have become increasingly popular for their positive [effects](#) on mental health – I recently utilized saffron in a gummy formulation supporting sleep and relaxation. [A study](#) from Mashhad University of Medical Sciences in Iran evaluated the effect of ↓



A quick guide to **perimenopausal** terminology

PERIMENOPAUSE

... is the time leading up to a woman's last menstrual cycle, punctuated by hormonal changes and cycle irregularity. According to The North American Menopause Society, this phase can last from four to eight years.

MENOPAUSE

... means the cessation of menstrual cycles. The Mayo Clinic [noted](#) menopause is diagnosed when a woman has gone 12 months without a period.

VASOMOTOR SYMPTOMS

... like hot flashes and night sweats are some of the more common symptoms associated with the menopausal transition. Vasomotor symptoms is the medical terminology used to describe this group of symptoms.

CLIMACTERIC SYNDROME

... is also referred to as menopause syndrome. [Climacteric syndrome](#) is a term for the many symptoms associated with perimenopause, such as hot flashes, headaches, mood swings, insomnia, anxiety and depression.



Flavor masking technology has made great strides that eliminate most issues in formulating with botanical ingredients.

saffron stigma extract in combination with fennel seed and chamomile flower extracts on perimenopausal symptoms in 120 women. Subjects received either a placebo, low dose (250 mg chamomile, 30 mg fennel, 15 mg saffron), medium dose (500 mg/60 mg/30 mg) or high dose (1,000 mg/120 mg/60 mg) for 12 weeks and filled out a questionnaire at baseline and weeks one, six and 12. Both the medium and high doses showed significant symptom reduction in physical, psychological and urogenital symptoms.

Another [study](#) out of Murdoch University in Australia evaluated the effects of 14 mg saffron extract alone (as affron, from Pharmactive) twice daily in 86 perimenopausal women over a period of 12 weeks. Three surveys and scales were used to measure changes in physical and psychological symptoms. While saffron did not show any improvement in vasomotor or somatic symptoms compared to the placebo, researchers observed significant reductions in anxiety and depression symptoms.



TONGUE-TIED ABOUT TONGKAT ALI

Tongkat ali, also known as *Eurycoma longifolia* or Malaysian ginseng, is another botanical ingredient touted for [positive impact on mood](#). What I found most interesting about this ingredient is not only has it been studied in perimenopausal women, but it also has been shown to [improve testosterone levels](#) and [sexual performance \(in conjunction with *Polygonum minus*\)](#) in men.

A [study](#) on 75 perimenopausal and menopausal women in Canada evaluated the effect of 100 mg daily supplementation with tongkat ali (as Physta, from Biotropics) and 400 mg *Labisia pumila* (SLP+) extracts (marketed as Nu Femme, from HP Ingredients) over 24 weeks. Although the study reported a significant placebo effect – which the authors stated is common in menopausal clinical trials – supplementation with the botanical ingredients significantly reduced follicle-stimulating hormone, which normally [increases in women undergoing perimenopause](#). Both test and control groups showed significant reduction in hot flashes, although the percentage of those reporting a reduction was higher for the group receiving Nu Femme.

A [protocol](#) for a clinical trial studying the effects of tongkat ali alone was published last year, with the anticipation that data collection would be completed in December 2023. The study will investigate two doses of 50 mg and 100 mg versus placebo over 12 weeks in perimenopausal and postmenopausal women. ↓



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Menopause



Mood

PRESS PLAY: PERIMENOPAUSE IS MANAGEABLE

Clearly an array of ingredient options may help alleviate the unpleasant symptoms of perimenopause. Of course as product formulators, we must consider regulatory issues and organoleptic challenges as we create new functional foods and supplements. Thankfully, many ingredients are GRAS (generally recognized as safe) for several food and beverage applications, and others have “old” dietary

ingredient status for use in supplements. Flavor masking technology has made great strides that eliminate most issues in formulating with botanical ingredients.

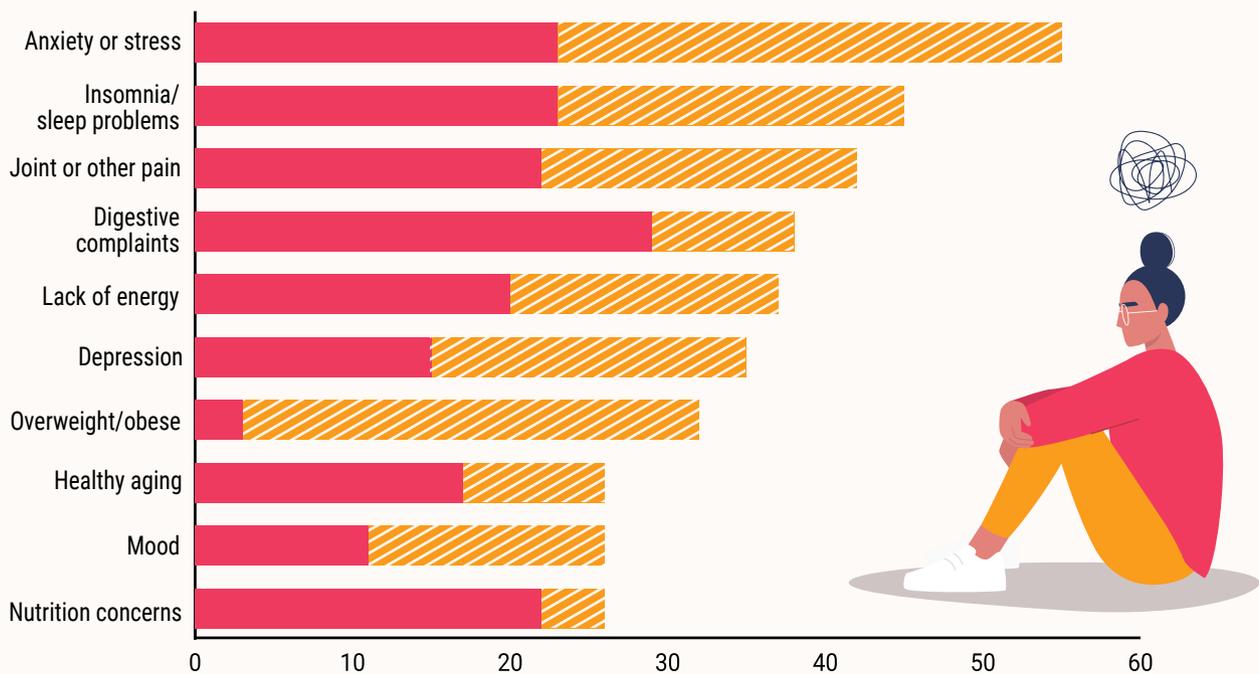
It’s an exciting time to be in the nutraceutical industry and it is an exciting time for women’s health. The more we speak out about perimenopause, the more we can normalize discussions and get the industry to take notice, leading to more product options for women around the globe. Let’s do this! ✨

CONSUMER INSIGHTS ON PERIMENOPAUSE

According to the Industry Transparency Center, the top health concerns reported by 65 U.S. female consumers who are concerned about perimenopause were anxiety or stress and insomnia/sleep problems. Significant fulfillment gaps exist for these two conditions, showing a strong opportunity for finished goods addressing these concerns. In fact, only 35% of these respondents said they were using a supplement to address perimenopause.

TOP 10 HEALTH CONCERNS FOR U.S. WOMEN CONCERNED WITH PERIMENOPAUSE

“Which of the following health conditions or concerns currently impact or impacted you within the past year?”



Entire bars represent the percentage of women impacted by concern – solid bars represent percentage of women taking supplement for concern, and cross-hatch bars represent fulfillment gap.

Source: Industry Transparency Center 2023 Consumer Supplement Survey



Devon Gholam, Ph.D., is VP of science and innovation at [Step Change Innovations](#), a sales accelerator for science-backed branded ingredients in the functional food and nutraceutical industries. Her career has touched on product development, applications, technical sales and technical writing at various companies like the Kellogg Co., Ganeden Biotech (now part of the Kerry Group) and Roquette America. Gholam is eager to share her knowledge in the industry and help foster an innovative and educational spirit within the nutraceutical community.



5 health concerns that manifest for postmenopausal women

WHEN BUILDING SUPPLEMENTS FOR THIS POPULATION, CONSIDER 28 INGREDIENTS THAT TARGET CARDIO, BONE, WEIGHT, GENITOURINARY AND COGNITION.

by David Foreman

Modern and natural medicine have focused for decades on the symptoms and health concerns of women as they transition through menopause – defined as the time of the final menstrual period, followed by 12 months of amenorrhea (lack of menstrual flow).

Postmenopause describes the life stage following the final menses. With the menstrual cycle in the rearview mirror, the attention shifts to more pressing and sometimes life-threatening health concerns such as cardiovascular issues, osteoporosis, weight management, genitourinary health and brain fog.

CARDIOVASCULAR HEALTH

While breast cancer is often thought of as the biggest threat to a woman's longevity, the most significant danger after menopause is [cardiovascular disease](#) (CVD). The Study of Women's Health Across the Nation (SWAN) has been examining the physical, biological, psychological and social changes experienced

by women during their midlife years. The researchers [found](#) that women who have more hot flashes earlier during menopause also seem to have a higher risk for heart disease. Frequent and persistent hot flashes have been associated with future CVD. Additionally, the loss of estrogen was linked to decreased blood vessel flexibility, higher cholesterol, decreased vasodilation and elevated blood pressure.

HAWTHORN extracts possess serum lipid-lowering, antioxidative and cardioprotective [properties](#), thus gaining popularity, especially for their anti-atherosclerotic effects.

NATTOKINASE (as NSK-SD, from JBSL-USA) helps to [break down](#) fibrin and decrease blood clots, and also helps to [reduce](#) blood pressure.

OMEGA-3S have shown to [decrease](#) triglycerides and also [improve](#) endothelial function. ↓



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INNOVATE IN WOMEN'S HEALTH

Krill Oil's Unique Women's Health Benefits



PMS Support



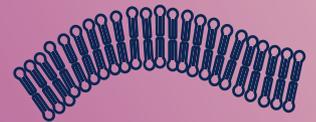
Krill oil has been shown to support mood, stress and discomfort caused by PMS.

Youthful Aging



Krill oil supports hydration and elasticity for radiant, healthy glowing skin as well as maintaining heart, brain, eye, joint and muscle health for youthful aging.

Cellular Health



Phospholipids are the building blocks of our cell membranes. Krill oil phospholipids are bound to omega-3 EPA/DHA which supports the flexibility and health of our cells for better overall wellness.

2 PMS Support Human Clinical Trials

Published study shows that krill oil:

- Positively impacts both emotional and physical aspects of PMS compared to fish oil
- Supports joint and breast comfort during PMS compared to fish oil

4 Skin Health Human Clinical Trials

Studies show krill oil:

- Supports skin hydration from the inside out
- Support skin moisture for smoother, softer skin
- Supports skin elasticity

Health Canada Approved Claims: **2** PMS Support & **11** Skin Health
(Reach out to us for the exact claims)

Contact us to get the unique power of krill oil for your next women's health formulation!
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With the menstrual cycle in the rearview mirror, the attention shifts to more pressing and sometimes life-threatening health concerns.

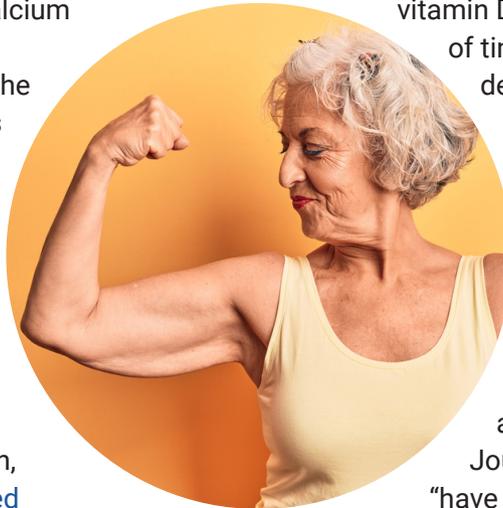
UBIQUINOL/COQ10 [reduces](#) low-density lipoprotein (LDL) cholesterol levels.

VITAMIN K2 (as MenaQ7, from Gnosis by Lasaffre) [provides for](#) optimal vitamin K2 intake, which is crucial to avoid the calcium plaque buildup that causes atherosclerosis, thus keeping the risk and rate of calcification as low as possible.

VITAMIN D deficiency is associated with a [significant risk](#) for cardiovascular health problems.

BONE HEALTH

As with cardiovascular health, low levels of estrogen are [linked](#) to an increased risk of developing weak bones. On average, women lose up to 10% of their bone mass in the first five years after menopause. After this, the rate of bone loss slows. By the age of 70, bone mass has [decreased by 30-40%](#). About half of women over the age of 60 will experience at least one fracture [due to osteoporosis](#).



VITAMIN K2 protects the vertebrae and the hip (femoral neck) against bone loss. [One study](#) using 180 mcg vitamin K2 (as MenaQ7) on 244 healthy postmenopausal women found decreased bone loss over three years.

MAGNESIUM might [reduce bone loss and turnover](#) in postmenopausal patients with osteoporosis, according to a study on 31 postmenopausal women using from 250-750 mg/day magnesium for six months and another 250 mg/day for 18 months.

VITAMIN D research has [shown](#) that inadequate vitamin D intake over long periods of time can lead to bone demineralization. Vitamin D deficiency leads to decreased calcium absorption, and ultimately the release of calcium from the bones to maintain circulating calcium concentrations.

CALCIUM supplements, according to a [quote](#) in the Journal of Bone Metabolism, “have little role to play in the modern therapeutics of osteoporosis, which is based around the targeting of safe and effective anti-resorptive drugs to individuals demonstrated to be at increased risk of future fractures.”

WEIGHT MANAGEMENT

[Research](#) has shown that both menopause and the first two years postmenopause cause ↓

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SUBSTANTIATING PRODUCTS FOR WOMEN – SEE THE SUPPLYSIDE EAST 2024 SESSION!

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Fore-mulations

the body to gain fat and lose lean tissue mass. Because weight management is part of metabolic changes, we can also connect other conditions to this stage, such as metabolic syndrome, elevated blood sugar, excess abdominal fat and elevated blood fats.

One [study](#) found that postmenopausal women were more likely to meet the criteria for metabolic syndrome compared to premenopausal women. The decrease in estrogen levels in menopausal women is associated with the loss of subcutaneous fat and an increase in abdominal fat. Changes in body structure are real!

The best approach to weight management may be to address those underlying factors contributing to weight gain/loss. Some of the top areas to focus on (and clinically substantiated ingredient examples for weight management) include:

LEPTIN: African mango (*Irvingia gabonensis*, as IGOB131, from Gateway Health Alliances) [increases](#) adiponectin levels and promotes healthy leptin levels.

AMPK: Jiaogulan (*Gynostemma pentaphyllum*, as ActivAMP, from Gencor Pacific) [reduces](#) tumor necrosis factor (TNF)-alpha and activates an enzyme called AMP-activated protein kinase (AMPK).

BLOCKERS/BINDERS: *Cissus quadrangularis* (as CQR-300, from Gateway Health Alliances) [inhibits](#) select enzymes (lipase, a-amylase, a-glucosidase).

INSULIN RESISTANCE/INSULIN MAINTENANCE: Cinnamon (as [Cinnulin PF](#), from Prinova) reduces insulin resistance and improves insulin sensitivity.

STRESS (CORTISOL): *Caralluma fimbriata* (as Slimaluma, from Gencor Pacific) [reduces](#) stress and cortisol levels.

ADIPONECTIN: Lychee (as Oligonol, from BIONAP) [elevates](#) adiponectin levels (also decreases insulin resistance).

OXIDATIVE STRESS: Moro blood orange (*Citrus sinensis*) extract (as Morosil, from BIONAP) [modulates](#) antioxidant, anti-inflammatory and metabolic pathways which, in a double-blind, placebo-controlled randomized study for six months led to significant reductions in body mass, body mass index, hip and waist circumferences, fat mass and fat distribution.

GUT-BRAIN: Probiotics such as *Bifidobacterium animalis* subsp. *lactis* (as BB-12, from Chr. Hansen) were shown in a rat model to help with insulin resistance and intestinal permeability, leptin increase and more.

GENITOURINARY HEALTH

The genitourinary syndrome of menopause (GSM) is a relatively new term. GSM is a chronic, progressive, vulvovaginal, sexual and lower urinary tract condition characterized by a broad spectrum of signs and symptoms. Most of these symptoms can be attributed to the lack of estrogen that characterizes menopause. The [major clinical manifestations](#) look something like this: Vaginal dryness; vaginal/pelvic pain; decreased desire, arousal and orgasm; loss of libido; urgency incontinence; reoccurring urinary tract infections; and more. ↓



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FERMENTATION
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A postbiotic complete with a beneficial mix of metabolites



Clinically shown to support immune health

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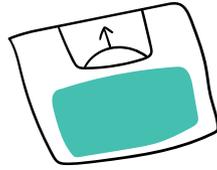


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Both menopause and the first two years postmenopause cause the body to gain fat and lose lean tissue mass.

CRANBERRY [reduces](#) the risk of symptomatic, culture-verified urinary tract infections (UTIs) in women with recurrent UTIs.

PROBIOTICS [reduce](#) the prevalence of reoccurring UTIs and support GSM. Compared with estrogen alone, estrogen combined with probiotics [significantly improved](#) GSM symptoms, mainly vaginal dryness, painful intercourse and increased vaginal health scores

[Studies](#) on Gencor Pacific's **Genopause** (a non-estrogenic formula consisting of *Tinospora cordifolia*, *Asparagus racemosus*, *Withania somnifera* and *Commiphora mukul*) have shown a reduction of menopausal symptoms such as hot flashes, night sweats and sweating. In addition, compared to placebo, other less discussed items – such as accomplishing more tasks, as well as improvements in mood, patience, stamina, vaginal dryness, sleep and avoidance of intimacy – were also seen as secondary endpoints.

LIBIFEM (*Trigonella foenum-graecum*, or fenugreek seed extract) from Gencor Pacific [supports](#) women's healthy hormone levels (estradiol and testosterone ratios), which led to

increased sexual arousal, desire, frequency and satisfaction in healthy women.

LIBOOST from Pharmactive Biotic Products is a damiana (*Turnera diffusa*) extract that was shown in a recent unpublished study to increase sexual desire, lubrication, frequency, satisfaction and orgasm.

COGNITION

The increased frequency of cognitive complaints in menopausal women suggests that memory problems are related to the menopause transition rather than to the aging process. Clinical trials have [shown](#) that hormone replacement therapy enhances cognition. This implies that estrogen drops [contribute](#) to cognitive issues in postmenopausal women.



AMERICAN GINSENG (*Panax quinquefolius*) extract (as Cereboost, from Naturex) [showed](#) to enhance acetylcholine levels while providing neuroprotective benefits, which improved learning and memory function in mice. ↓

TOP 6

HEALTH CONCERNS

UNDERSTAND THE DRIVING FACTORS
BEHIND WOMEN'S SHOPPING TRENDS.

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Fore-mulations

BACOPA, or *Bacopa monnieri*, (as BacoMind, from Natural Remedies) has multiple [mechanisms of action](#) around supporting neurotransmitters involved in cognition. Of these, dopamine, acetylcholine, GABA (gamma-aminobutyric acid) and serotonin are on the list. Bacopa is often looked at for its [neuroprotective benefits](#), too.

GRAPE (*Vitis vinifera*) extract (as Cognigrape, from BIONAP) is high in anthocyanins and proanthocyanidins – nature’s most powerful antioxidants – and was shown to [support](#) cognitive profiles.

GREEN OAT (*Avena sativa*) extract (as Cognitaven, from Anklam Extrakt GmbH) research shows a [positive impact](#) on both PDE (phosphodiesterase)-4 and monoamine oxidase-B (MAO-B). PDE-4 [supports](#) both norepinephrine and serotonin, while MAO-B [supports](#) dopamine, norepinephrine, acetylcholine and serotonin, which can help with stress.



A [review](#) on **SAGE** (*Salvia*, as Cognivia, from Nexira) shows the botanical’s impact on acetylcholine by inhibiting the enzyme that breaks down this neurotransmitter.

The research also points to sage for its high content of polyphenols and their neuroprotective benefits. Clinically, the results point to possible pertinent action on cognitive skills including memory, attention and learning. ♦



David Foreman, Pharm.D. is a registered pharmacist, author and media personality known to consumers internationally as “[The Herbal Pharmacist](#).” A background in pharmacy and natural medicine puts Foreman in an elite class of health experts who can teach integrative medicine practices. He helps consumers achieve health and vitality through his four pillars of health: diet, exercise, spirituality and supplements. Foreman is a graduate of the University of South Carolina College of Pharmacy, currently serves on the Organic & Natural Health Association’s (O&N) scientific advisory board and is the author of “4 Pillars of Health: Heart Disease.”

MENOPAUSE INNOVATIONS

WOMEN MAY SPEND A THIRD OF THEIR LIVES IN POSTMENOPAUSE.

SUPPLEMENTS COMPANIES ARE RESPONDING.

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5 multitasking ingredients women's multivitamins may be missing

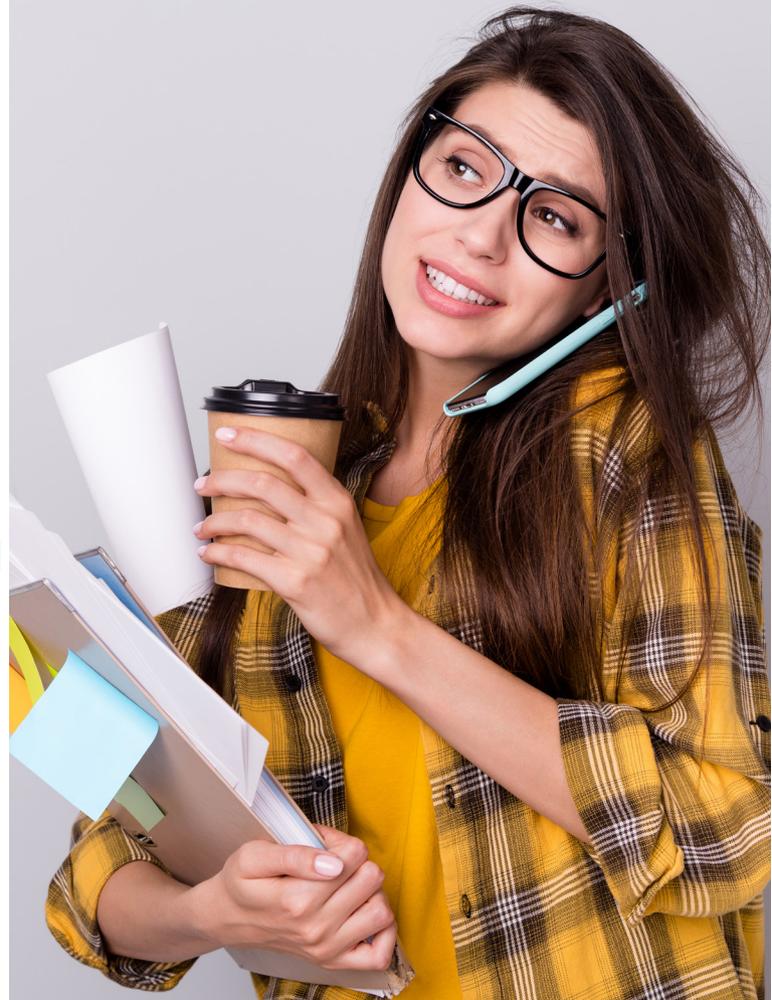
HEARTS AND BONES, BRAINS AND MOOD, ANXIETY AND SLEEP, BEAUTY-FROM-WITHIN AND PERIOD PAIN – WE'VE GOT WOMEN'S CONCERNS COVERED WITH FIVE HEAVYWEIGHT SUPPLEMENT IDEAS.

by Charlotte Traas

Women today are masters at multitasking; and while they understand the need for nutrient-rich diets plentiful in fiber and vitamins, in actuality, dinner can sometimes look like leftover chicken nuggets and a glass of red wine (for the resveratrol, of course). To cover our bases, many women turn to a mighty multivitamin to give them nutritional insurance for what their diets could be lacking. Here's my list of five ingredients that – regardless of whether they are in one's daily multivitamin – would still do well positioned as a value-add supplement, especially in light of women's busy lifestyles.

1. VITAMIN K2

K2 is included in some multivitamins, but the oft-asked question is, is it enough? K2, also known as a group of menaquinones, is a nutrient found in fermented foods, like natto, which are often vastly missing in many people's diets. K2 is fat soluble and has been used in the treatment of osteoporosis in Japan, thanks to burgeoning [research](#) on K2 supporting bone health by its unique ability to help steer calcium to the areas of the body that need it. In the study, women were eating natto, known to be rich in K2, and experienced reduced bone loss.



The research is still early, but another study identified K2 akin to a heart-health superstar – because as it's directing calcium to the bones, the nutrient likely contributes in preventing that calcium from sticking around in the arteries. One study showed that increasing K2 intake by 10 mcg may decrease the risk of heart disease by 9%. So if a woman's diet is scarce on egg yolks, blue cheese and natto ... supplementing additional K2 might be advantageous for heart and bone health.

2. METHYLCOBALAMIN

Although B12 has strong [research](#) ties to red blood cell formation, newer research shows the B vitamin possibly aids [eye health](#), as well as the formation of [myelin](#) (a protective layer that surrounds the nerves) and even mood. This versatile nutrient is essential for women – but while many multivitamins



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Participants who took lion's mane for eight consecutive weeks experienced improved sleep, as well as significantly reduced anxiety and depression.

contain B12, the most common form used is cyanocobalamin. Cyanocobalamin's converted form, methylcobalamin, is often not used in supplementation due to a higher price point. For some individuals, spending more for methylcobalamin could be key in getting the nutrient they need.

Cyanocobalamin is a synthetic form of B12 that the body can take in and convert into either methylcobalamin or adenosylcobalamin, which are the two active forms the body can use. Adenosylcobalamin is important in the metabolism of fats and amino acids, so cyanocobalamin has a place beside methylcobalamin in a person's supplement regimen. However, a category of people who have a gene variant called MTHFR (methylenetetrahydrofolate reductase) need the supplementation of methylcobalamin, since their body has a different conversion rate that can affect the amount of methylcobalamin in the body.

Where we tend to hear about MTHFR most is with folic acid being converted to methylfolate during pregnancy to support the neural tube development in infants. But people with the gene variant could also be impacted by how their bodies process cyanocobalamin and convert it into methylcobalamin. Taking B12 in the methylated form saves the body from the conversion, otherwise at risk of compromise by the MTHFR gene.



3. LION'S MANE

Staying sharp as we age or juggle daily tasks can be a concern. Lion's mane is a multifunctional mushroom thought to boost both brain and mood.

The functional fungus looks like a puffy waterfall stuck to the side of a dead tree and has the scientific name *Hericium erinaceus*, translating to "hedgehog." Now you know!

Lion's mane is possibly linked to neurite outgrowth — little tendrils that reach out in the brain and assist brain cells in communicating with one another by helping to improve nerve growth factor levels. In a [clinical study](#) on 50- to 80-year-olds with mild cognitive impairment, subjects supplementing with 1,000 mg of lion's mane showed significant improvement; however, once they stopped taking it, scores declined again, so results are theorized to be tied to consistent supplementation.

Mood is another possible beneficiary, with a [study](#) showing that participants who took lion's mane for eight consecutive weeks experienced improved sleep, as well as significantly reduced anxiety and depression.

4. CERAMIDES

Ceramides are the fatty acids that play a key role in the barrier function of the skin. As we age, our skin's architecture and moisture retention can suffer, and supplementing with ceramides has proven beneficial. ↓

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- 64% better restorative sleep*
- 2.6x greater reduction in nighttime aches*
- 75% great reduction in daytime aches*
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- 93% better quality of sleep*
- 2x easier morning waking*
- 93% better morning alertness*
- 2.2x improvement in overall mood*

Sleeping better at night is essential to elevate overall well-being and quality of life and is one of the most important ways to improve a person's health. Improving restorative sleep – the kind that leaves someone feeling thoroughly rested and rejuvenated is what people refer to when they say they had a good night's sleep. It is the experiential benefit of sleep - of waking feeling rested and restored and is associated with improved alertness, cognitive function, mood, energy, and wellbeing. Studies suggest that more than 65% of consumers are not getting enough restorative sleep due to various factors.

Serezin™ has been clinically validated to improve restorative sleep as well as a wide range of sleep measures to help people wake feeling their best. Serezin supports getting to sleep faster and easier, improved sleep quality, and delivers less groggy mornings with better alertness and mood. A synergistic complex of *Boswellia serrata* and *Zingiber officinale*, Serezin provides fast-acting natural comfort to help reduce daytime and nighttime aches, which is a critical link to improved sleep.

With its multifaceted benefits, Serezin introduces a novel proposition in the sleep aid and women's health markets, providing a broad range of messaging opportunities for consumer products.

* THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE, OR PREVENT ANY DISEASE.

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Ceramides may play an important role in how the skin is supported from within.

After six weeks of supplementation with a ceramide supplement called Skin-cera, [research](#) showed significant improvement in skin brightness, hydration, and even a reduction of fine lines and wrinkles.

The glycosylceramides found in Skin-cera come from konjac (*Amorphophallus konjac*) root, often associated with gummy-like shirataki noodles. These phytoceramides may play an important role in how the skin is supported from within.

5. GINGER

This powerful herbal has a history of [aiding nausea](#), but research within the inflammation and pain space is another reason to add it to the list of helpful supplements that should be considered.

Five days of supplementation with ginger (*Zingiber officinale*) was [shown](#) to have a statistically significant effect on period pain.

[Another study](#) showed ginger likely affected recovery and led to less muscle pain the day after exercise, meaning it could help someone get back in the gym faster — or even want to go to the gym again at all.

Another exciting possibility is ginger's potential tie to weight loss, with a [meta-analysis](#) showing ginger's association with decreased body weight, along with better fasting glucose levels and higher HDL (high-density lipoprotein) cholesterol levels.

This spicy herb is a great multitasker, offering multiple influences that warrant its addition to women's wellness supplement lineups. ✨



Charlotte Traas is a supplements futurist, master herbalist, sales strategist and gummies expert with more than 10 years of teaching, curriculum and content development experience. She is VP of sales, North America, for TopGum Gummaceuticals.

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