

Across the life stages: Gencor's science-backed solutions for women's health



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Boosting female health and sports performance

Botanical ingredients specialist Gencor™ is pioneering clinically proven solutions that boost female health across all life stages. These solutions tap into growing demand from a range of end users – female athletes, keen sports enthusiasts, and women leading active lives – for scientifically-backed products that offer clear functional benefits.

For formulators, there is a huge opportunity here. Since the pandemic, consumers have become increasingly health-conscientious and are looking for functional solutions to support their pursuit of improved health and wellness. It is also clear that the global sports nutrition market is ripe for innovation and is growing at an impressive rate: valued at \$34.8 billion USD in 2020, the sector is forecast to reach \$67.9 billion USD by 2030.¹

Gencor and women's health: Operating at the forefront of this field

Gencor has a sharp focus on science and innovation. The company coordinates numerous clinical studies every year on its portfolio of ingredients to substantiate the health benefits they elicit. By doing so, formulators can be confident that their products incorporating these ingredients meet the needs of consumers. The work carried out in the field of female athletes and sports nutrition is particularly ground-breaking.

"We recognised that, in the context of human studies, female athletes and sports nutrition consumers were neglected," explains Mariko Hill, Global Innovations Manager at Gencor and a professional cricket player. "Women – and specifically athletes – have a whole lifetime of needs that are often different to men's needs, and no one was really addressing that."

Clinical studies have recently been carried out on a range of Gencor products, notably Libifem®, Genopause®, HydroCurc®, and Levagen®. This report will discuss some of the key functional benefits identified, touching upon hormonal health, muscle mass, bone density, and oestrogen levels. It will also identify potential new applications.

"Our aim is always to be at the very forefront of this field," adds Hill.



Libifem®: Positively impacting strength and endurance

Libifem® is a standardised fenugreek extract, clinically proven to support sexual health and menopausal symptoms. The extract contains saponins, which support healthy levels of estradiol in women. Studies have shown that this can promote sexual vitality while helping alleviate symptoms of menopause.²

Gencor hypothesised that Libifem® could also be used to increase muscle strength and endurance. A double-blind, randomised, placebo-controlled interventional study to evaluate the effect of Libifem® on muscle strength, endurance, and body composition in women aged between 25 and 45 years was recently conducted and is currently under peer review.

"This is the kind of specific clinical study with female athletes that is not often carried out," says Hill.

Enhancing overall performance

In the study, Libifem® was shown to positively impact body composition faster than the placebo.

"The key thing is that this ingredient not only improves body composition but exercise performance as well," says Hill. "It is not a case of one thing or the other."

For Gencor, Libifem® is a great example of a botanical that formulators can use in various targeted products. The ingredient has been shown to deliver libido, menopausal, and fitness benefits in terms of muscle mass, strength, and performance.

This taps into an emerging trend, with active women increasingly seeking plant-derived formulations that can enhance overall performance and positively influence muscle growth. The ingredient can be used as a standalone in capsule or tablet form or blended to make a functional protein product.



VeriSpense®: Delivering bone health benefits

Resveratrol is a naturally occurring polyphenol, produced in grapes and other plants to serve as a defence mechanism. Well-researched for its antioxidant properties, poor oral bioavailability is a key challenge for formulators.

VeriSpense®, a functional powder developed by Gencor partner Pharmako Biotechnologies, addresses this central challenge. Consisting of a blend of a form of resveratrol through fermentation known as Veri-te™ in combination with a patented dispersion technology (LipiSpense®), the combination has been shown in clinical trials³ to overcome resveratrol's normally limited ability to disperse in aqueous environments, thus increasing its bioavailability.

Bioavailability and strengthened bone density

In particular, resveratrol has been shown to boost bone health in women, opening up new opportunities in sports nutrition and healthy ageing. Female athletes and sports enthusiasts are increasingly aware of bone health's role in maintaining an active and healthy life.

To this end, there has been growing clinical evidence⁴ that resveratrol can boost bone mineral density. With specific reference to bone health in women, improvements were seen in bone density and bone alkaline phosphatase over a two-year period compared to a placebo.

On top of these health benefits, the formulation of resveratrol as VeriSpense® has been clinically demonstrated to approximately double resveratrol's bioavailability.⁵

"LipiSpense® technology enables our ingredient to disperse really effectively in cold water," explains Hill. "What this means in practice is that the functional ingredient is absorbed much better in the body. For us, this clearly shows that not all ingredients are created equal."

LipiSpense®, therefore, delivers key functional and technical benefits for formulators, enabling VeriSpense® to be easily integrated into bone health-boosting products as part of a wider array of delivery formats such as effervescent tablets, stick packs, and more.





Hydrocurc®: Offering clinically proven functionalities

Hydrocurc®, an award-winning curcuminoid extract that has been clinically shown to be the world's most bioavailable source of curcuminoids⁶, offers significant functional benefits for female sports enthusiasts and athletes. Using the same LipiSpurse® technology as VeriSpurse®, the ingredient is easily absorbed in the body.

Overcoming iron deficiency

"Iron absorption is one of biggest obstacles in female health," says Hill. "This is especially true for female athletes. While there is a significant market for iron supplementation, many consumers experience side effects such as gastrointestinal stress."

In clinical studies, Hydrocurc® has been shown to safely improve iron absorption in women.⁷ A study on the effects of administering oral iron supplementation with HydroCurc® found that participants had significantly higher ferritin levels compared to placebo.

The results indicate that HydroCurc® can be a supportive agent alongside iron supplementation. Furthermore, the study found increased levels of brain-derived neurotrophic factor (BDNF), suggesting the combination may also support cognitive health.

Boosting exercise recovery

A bioavailability study also found that Hydrocurc® delivers a high load of Curcuma longa extract (90%) and a low load of excipients (10 % Lipisperse®).⁸ Meanwhile, a clinical study on exercise recovery confirmed that the ingredient could significantly reduce lactate levels, reduce delayed onset muscle soreness, and support a balanced inflammatory response.⁹

Taken together, these studies suggest that Hydrocurc® may allow for a quicker return to exercise training or an ability to exercise at higher thresholds.

HydroCurc®

Levagen+®: Supporting the body's natural defence

Levagen+® is an ingredient that has been extensively studied for various health benefits, including its ability to provide relief from occasional bodily discomfort and support a balanced inflammatory response, as well as support joint health, sports recovery, and sleep. Levagen+® is a combination of palmitoylethanolamide (PEA), an endogenous fatty acid amide that is produced naturally in the body in response to injury and stress, with the aforementioned LipiSpense® technology to improve bioavailability.

"PEA also influences the endocannabinoid system and is, therefore, a safe and clinically-proven alternative to CBD," says Hill.



Aiding exercise recovery

A key differentiator with Levagen+® is that it is absorbed in the body far more efficiently than standard PEA. Clinical results have shown that incorporating Levagen with the LipiSpense® delivery system makes PEA absorption far more effective.¹⁰

A recent study into osteoarthritis found that the ingredient was effective in reducing joint discomfort, stiffness, and function.¹¹

Another study, this time on exercise recovery, found that Levagen+® significantly reduced lactate levels and muscle damage, suggesting that the product may allow individuals to train harder and longer.¹²

Delivering bioavailability and convenience

Formulators have traditionally been limited to delivering PEA in tablet and capsule format, because it is lipophilic. The incorporation of LipiSpense® delivery technology not only increases bioavailability and functionality, but also opens the door to a far wider range of applications.

"PEA is such a difficult compound to solubilise," says Hill. "Through our LipiSpense® technology, formulators can now include PEA in powders, gels, and gummies. We know that the trend today is all about convenience."

Levagen+ also offers an alternative for menstrual pain. Among female athletes there is often a high prevalence of women who rely on non-steroidal anti-inflammatory drugs (NSAIDs) to reduce menstrual pain. However, Levagen+ offers an alternative solution to NSAIDs without the negative side effects associated:

- gastrointestinal upset
- modulation of the gut-microbiome
- blunting muscle protein synthesis

Genopause: Combining Ayurvedic wisdom with cutting-edge science for menopause

The traditional field of medicine known as Ayurveda has supported the health needs of individuals through natural botanicals for 6,000 years. Ayurveda offers a systematic approach to wellness, helping human beings to realise their full potential.

Gencor combines Ayurvedic wisdom with rigorous science to deliver clinically studied botanical ingredients. It uses botanicals that have been grown according to strict quality-assurance processes and that comply with all necessary regulations. All of its ingredients go through rigorous scientific analysis.

Genopause® is a unique blend of four Ayurvedic herbal extracts that have been clinically proven to reduce menopausal symptoms. "The recent trend in women's health has seen an increase in the popularity of this product," says Hill. "For example, a major brand recently launched a product with Genopause® in the UK."

Combining different, complementary elements

What makes Genopause® unique is the complementarity of the four botanicals, each of which addresses a specific symptom. Guduchi (*Tinospora cordifolia*), for example, supports a healthy immune system, while shatavari (*Asparagus racemosus*) is known for its support in stress reduction and helping to balance the body during menopause.

Ashwagandha (*Withania somnifera*) is rich in flavonoids that provide support for relaxation, mood, and sleep. Guggul (*Commiphora mukul*), meanwhile, is known to help maintain cholesterol and triglyceride levels that are already within the normal range.

Genopause® has clinically proven benefits

Clinical research published in the Journal of Herbal Medicine was recently carried out, demonstrating the efficacy of this blend in addressing menopausal symptoms.

The study found that Genopause® was able to significantly reduce symptoms, including hot flushes and night sweats. The product was also effective in relieving vasomotor symptoms of menopause and improving associated psychosocial and adverse sexual symptoms.¹³

Clinical evidence, therefore, demonstrates that Genopause® is a safe and effective treatment for reducing menopausal symptoms, and can be used as a standalone product or integrated into formulations.

Key takeaways

- Context is key. Brands looking to formulate need bespoke solutions that specifically target the needs of end users.
- For female consumers, this means taking into account their age, activities, stage of life, and any underlying symptoms.
- Gencor offers a portfolio of ingredients that specifically target the needs of female consumers across all life stages.
- Consumers generally want products that have been shown to deliver functionality – and every single Gencor ingredient has clinical evidence to support it.
- Gencor's investment in science and research is central to the company's ability to meet formulator and consumer needs.
- Furthermore, Gencor's focus on constant innovation means that formulators have access to cutting-edge ingredients and technologies that match ever-evolving market trends.

Gencor will be present at Vitafoods Europe in Geneva, at booth G181. Come and find out how Gencor is delivering clinically proven solutions to boost female health across all life stages.

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