

Introducing...

# BioDoph-Fem

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Just as the gut microbiota provide a natural protective layer against pathogenic organisms, more and more research shows the vaginal microbiota play a powerful supportive role. These healthy bacteria provide protection through multiple mechanisms including adhesion to epithelial cells and producing natural antimicrobial compounds, including antimicrobial peptides and bacteriocins. Beneficial probiotics can modify the local environment, down-regulate inflammatory cytokines, and increase the production of short-chain fatty acids such as butyrate. Remember, short chain fatty acid like butyrate not only provide energy for epithelial cells to repair and reproduce but also activate immune cells and increase resistance to bacterial pathogens.

Knowing this, Biotics Research combined two clinically validated probiotic formulations, Astarte and Clepius, in a product called BioDoph-Fem. Both probiotic formulations in BioDoph-Fem have demonstrated efficacy in



clinical trials for vaginal and gastrointestinal health and resolution of symptoms related to dysbiosis. BioDoph-Fem contains 5 Lactobacillus strains.

Let's talk about each formula separately. Let's start with Astarte. It's a combination probiotic comprised of 4 Lactobacillus strains, *L. crispatus* LBV88, *L. rhamnosus* LBV96, *L. gasseri* LBV150N, and *L. jensenii* LBV116 isolated from healthy pregnant women in the first trimester of pregnancy. Healthy asymptomatic women were found to have lactobacilli as the dominant species. Lactobacilli is associated with

the reduction of a number of urogenital diseases, such as bacterial vaginosis, yeast infections, sexually transmitted infections, and urinary tract infections. One of the reasons lactobacilli are so protective is that they produce hydrogen peroxide, H<sub>2</sub>O<sub>2</sub>. H<sub>2</sub>O<sub>2</sub> inhibits colonization of the urogenital tract by *E. coli*. So, a greater abundance of hydrogen peroxide-generating species creates an environment that reduces the risk of a UTI.

Bacterial vaginosis in effect is vaginal dysbiosis and is characterized by a lack of lactobacilli, particularly *L. crispatus*. Concurrently,

there is an overgrowth of anaerobe bacteria such as *Gardnerella vaginalis*. Clinically, this leads to the development of vaginal discharge, pruritis or intense itchiness, and additional symptoms. The absence of hydrogen peroxide-producing lactobacilli, combined with the growth of anaerobe bacteria, lead to a more basic pH. A basic pH creates a perfect storm for bacterial biofilms that are more resistant to antibiotic therapy, as well as an increased susceptibility to sexually transmitted infections, as well as other gynecological diseases like endometritis and inflammation of the fallopian tubes. Biofilm production by pathogenic species like *G. vaginalis* is likely the reason that antibiotics used in isolation are often ineffective, resulting in recurrence after treatment.

The four probiotic strains in Astarte were selected out of 127 potential strains, after a step-by-step selection process designed to find the optimal probiotics to promote vaginal health. The four strains were chosen based on antibiotic resistance, lack of mucin decay, their ability to generate hydrogen peroxide and lactic acid. They were also selected because they survive stomach acid and bile salts. They possess the ability to grow in both aerobic and anaerobic environments. The four probiotic strains in Astarte possess the ability to inhibit the growth of a number of vaginal pathogens, specifically, *E. coli*, *G. vaginalis*, *Candida krusei*, *Candida albicans*, and *Candida glabrata*.

Both *L. crispatus* and *L. jensenii* are strong hydrogen peroxide producers, creating a more hostile environment for pathogenic species. Multiple clinical trials have been conducted to evaluate the Lactobacilli combination in Astarte.

Studies have shown that pathologic organisms decrease whereas beneficial bacteria increase even though they are not supplemented. This shows the value in creating the optimal environment the body wants to restore the optimal probiotics when given the opportunity.

The second clinically validated probiotic in BioDoph-Fem is Clepius. Clepius contains a specific strain of *L. plantarum* shown to support gastrointestinal health and relieve symptoms such as discomfort and bloating. *L. plantarum* is a commensal bacterium in humans, previously reported to support the integrity of the intestinal barrier and to reduce intestinal permeability.

Two of the mechanisms identified are the upregulation of tight junction structures and increased short chain fatty acid production. The *L. plantarum* species is noted for its ability to survive in the gastrointestinal tract. Clepius supplementation alone has been shown to help with IBS symptoms including disease severity, abdominal pain and discomfort, IBS-related quality of life, perceived stress, and stool consistency.

These are exciting times when highly specific targeted probiotics from healthy women can be identified, reproduced, and combined to provide the probiotics that change the environment of both the vaginal and gastrointestinal tissue. Consider BioDoph-Fem at 1 capsule bid independently or in conjunction with other known therapies.

Thanks for watching. I look forward to being with you again next Tuesday.