

## REPORT

### Warding Off Chronic Yeast and Bacterial Infections

By Dale Kiefer



Powerful drugs exist to eradicate most acute yeast and bacterial infections. Yet if the conditions that make one vulnerable to these pathogens are not corrected, these organisms too often return.

Women frequently encounter yeast infections in their vaginal tissues. Likewise, chronic urinary tract bacterial infections cause significant misery for tens of millions of women annually.

New studies reveal that restoring healthy probiotic flora significantly protects against these types of chronic infections.

#### BACTERIA: FRIENDS OR FOES?

We often think of bacteria as the enemy: It's certainly true that many species such as those that cause tuberculosis or anthrax are capable of great harm. But we would be remiss to ignore the fact that some bacteria, particularly those that produce lactic acid, are not only harmless, they're actually highly beneficial. In fact, a beneficial symbiotic relationship exists between humans and certain types of "friendly" bacteria.

Although we enter the world with sterile (free from living microorganisms) bodies, the situation changes rapidly. Beneficial bacteria lose little time colonizing areas where body tissues interface with the environment, such as the mouth, digestive tract, and vagina. When beneficial bacteria hold sway, optimal health is achieved and maintained. In the gut, friendly bacteria help maintain the integrity of the intestinal lining and emerging evidence suggests they also boost immunity.<sup>1-4</sup>

Happily, by flourishing they also prevent other, far less innocuous bacteria from gaining a foothold, both by physically crowding them out, and by optimally altering the local environment to discourage harmful bacteria from thriving. An individual's beneficial microflora eventually number into trillions of individual cells. In the gut, these friendly microorganisms contribute to the body's supplies of vitamin K and folic acid<sup>5,6</sup> by interacting with our own cells in "a highly complex but harmonious relationship,"<sup>7</sup> as well as helping modulate innate immunity.<sup>2</sup>



#### LACTOBACILLUS IS A GIRL'S BEST FRIEND

A similar colonization process also helps protect against a number of vaginal infections in females. Once established, friendly bacteria (especially of the *Lactobacillus* genus) produce natural disinfectants that help maintain an optimal pH and a healthy balance of beneficial microorganisms in the vagina by excluding harmful bacteria and other pathogens.

For example, certain specific strains of *Lactobacilli* produce substances such as lactic acid, hydrogen peroxide, and bacteriocins, which inhibit the growth of bacteria implicated in bacterial vaginosis. Furthermore, these friendly acid-making bacteria may inhibit the adherence of harmful bacteria responsible for bacterial vaginosis.

Numerous factors may upset the delicate balance of friendly microflora. These include antibiotic therapy, dietary changes, cigarette smoking, sexual activity, and oscillating stress levels. Regardless of the cause, such perturbations may lead to overgrowth by one or another pathogen, perhaps resulting in the dreaded, but common, yeast infection or the lesser known (but no less common) condition known as bacterial vaginosis.



Often accompanied by odor, discharge, pain, and itching or burning, bacterial vaginosis is actually the most common vaginal infection in women of childbearing age. Bacterial vaginosis is caused by the overgrowth of anaerobic bacteria such as *Gardnerella*, *Mobiluncus*, *Bacteroides*, or *Mycoplasma*. Established risk factors for this condition include prior infection with the herpes simplex virus type 2, having multiple sexual partners, and low levels of *Lactobacilli*.<sup>8</sup>

While clearly a nuisance, bacterial vaginosis is also associated with an increased risk of developing more serious conditions such as pelvic inflammatory disease or sexually transmitted infections such as Chlamydia or gonorrhea. Bacterial vaginosis may also increase the risk of complications during pregnancy.<sup>8,9</sup>

## VAGINAL MICROFLORA DISORDERS EXCEPTIONALLY COMMON

According to one report, there are more than 300 million cases of urinary tract infections, bacterial vaginosis, and yeast vaginitis worldwide every year.<sup>10</sup> Yeast infections alone affect 75% of American women during their reproductive years, and 40-50% of these women will endure recurrent episodes, while 5-8% experience chronic *Candida* infections.<sup>11</sup>

Standard treatment for the common *Candida* yeast infection (technically called vulvovaginal candidiasis) calls for antifungal therapy, either with an oral agent, such as itraconazole or fluconazole,<sup>12</sup> or a more cumbersome vaginal cream or suppository, which may require multiple applications. Bacterial vaginosis is commonly treated with an antibiotic, such as metronidazole or clindamycin.<sup>13</sup> In any event, scientists note that recurrent infections of this type are “notoriously difficult to manage,” and can cause a great deal of discomfort, inconvenience, and even psychological distress.<sup>14</sup>

Given the high prevalence of these infections, and the alarmingly high rate of recurrence, it is clear that most adult women could benefit from preventive protection.

## PREVENTION PREFERABLE TO TREATMENT

Fortunately, scientists have identified specific species of bacteria that are especially effective at protecting vaginal and intestinal microflora, providing resistance against perturbations that may lead to overgrowth with decidedly unfriendly species of yeast and bacteria.

Generally, these protective bacteria are classified as acid-loving, or acidophilus bacteria. Clinical trials have shown that bacteria of the genus *Lactobacillus*, in particular, when consumed orally daily are especially effective at establishing and maintaining healthy vaginal microflora.

Commonly found living in harmony within the vagina, studies have shown that certain species of *Lactobacillus* are capable of inhibiting the growth of pathogenic organisms such as *Gardnerella vaginalis* and *Candida albicans*. These same friendly acid-making bacteria may also inhibit unwelcome fungi from adhering to the lining of the vagina, which prevents yeast infection.<sup>15</sup> A recent randomized, placebo-controlled, double-blind study found that women with high numbers of *Lactobacilli* in the vagina were far less likely to harbor yeast.<sup>16</sup>

Two species of *Lactobacillus* in particular, *L. rhamnosus* (GR-1) and *L. reuteri* (RC-14), have been shown to be especially adept at colonizing the vaginal environment and fighting off attempts by unwelcome bacteria and fungi to gain a foothold. In 2001, pioneering research conducted at the University of Western Ontario demonstrated the ability of these specific strains of *Lactobacillus* to “restore and maintain a normal urogenital flora” in women after just 28 days of daily oral use.<sup>17</sup>

A more recent study examined the potential role of these oral probiotics in treating bacterial vaginosis in conjunction with standard antibiotic therapy. The study enrolled 125 premenopausal women with diagnosed bacterial infections of the vagina.<sup>18</sup> Subjects were prescribed standard antibiotic therapy consisting of metronidazole (500 mg) taken twice daily for one week. Additionally, subjects were randomly assigned to a twice-daily dose of oral probiotics, containing GR-1 and RC-14, or inactive placebo, for an entire month, beginning on the first day of treatment with the antibiotic.



## WHAT YOU NEED TO KNOW: PROBIOTICS

Probiotics are microorganisms that produce beneficial effects on human health, such as preventing vaginal infections, maintaining optimal pH balance, supporting immune function, and preventing harmful microbes from thriving.

Scientists have identified two species of probiotic bacteria with remarkable benefits for female health. Known as *Lactobacillus rhamnosus* (GR-1) and *Lactobacillus reuteri* (RC-14), these probiotics show powerful effects in preventing and fighting bacterial and fungal vaginal infections.

### CONVINCING CLINICAL DATA

At the end of the one-month trial, 88% of women taking both antibiotic and oral probiotics were judged to be cured. In sharp contrast to this impressive cure rate, only 40% of the women taking standard antibiotic therapy alone were found to have been cured. *Lactobacillus* counts were high in 96% of the women who had received probiotic therapy, while counts were high in only 53% of control subjects at the end of the study.<sup>18</sup> "This study showed efficacious use of *Lactobacilli* and antibiotic in the eradication of bacterial vaginosis," concluded the researchers. Clearly, daily oral supplementation with *Lactobacilli* can make a significant contribution to vaginal health.

Earlier research showed that daily oral probiotic therapy is not only safe, but is also effective at shifting the vaginal microflora from a pathogen-friendly environment to a pathogen-resistant one. In a randomized, placebo-controlled trial in 64 healthy women, Canadian researchers showed that two months of therapy with daily GR-1/RC-14 oral probiotics shifted the vaginal microflora from one typified by potentially pathogenic bacteria and yeast (capable of causing bacterial vaginosis infection or fungal vaginitis) to "normal *Lactobacilli*-colonized microflora" in 37% of women versus just 13% of women taking placebo.<sup>19</sup>

Although apparently healthy when first enrolled, these women were found to be experiencing non-symptomatic bacterial vaginosis, which was successfully treated by restoring the normal *Lactobacilli*-dominant microflora with oral probiotics.<sup>19,20</sup>

### SUPPLEMENTING WITH PROBIOTICS

Probiotics are beneficial organisms that provide humans with a variety of health benefits. Evidence of these benefits has been known for a long time, but modern science has only recently begun to delve into the numerous ways in which these friendly microorganisms enhance our welfare.

There is strong evidence that the beneficial bacteria, *L. rhamnosus* GR-1 and *L. reuteri* RC-14, provide significant safeguards against vaginal disorders. For optimal female health benefits, health care practitioners suggest supplementing with 5-10 billion colony-forming units (cfu) of the *Lactobacilli* strains GR-1 and RC-14 each day. *Lactobacilli* products require refrigeration for optimal potency.

Immunosuppressed patients should consult a physician before supplementing with probiotic agents such as *Lactobacillus*.

Working to establish a natural state of harmony, these probiotics are capable of restoring balance, preventing infection by harmful microbes, and reducing inflammation in various areas of the body. •

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