

# Female Reproductive Hygiene & Its Relationship to Human Fertility, Candida, & STDs

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**R**eproductive hygiene is one of the most neglected areas of study in reproductive medicine today. Women and men are told little about the importance of reproductive hygiene. They do not know that the ecology of the reproductive system plays a critical role in the prevention of STDs (Sexually Transmitted Diseases) or their ability to bare children later in life. The lack of understanding around reproductive hygiene has led to a fertility and STD crisis.

Although modern medicine addresses each threat to vaginal and sperm health independently quite well, when it comes to adequately integrating the compounding factors into one coherent hygiene protocol, it is not effectively communicated through doctors, parents, teachers, and communities. With that said, in this article I would like to establish the importance of hygiene and bioterrain and outline an integral reproductive and sexual hygiene protocol that promotes fertility, supports the prevention of STDs, and that maintains a balanced uro-vaginal terrain.

## Male Infertility Statistics

Today, it is estimated that one in six couples is infertile. Some 40 per cent of the time infertility is caused by low sperm count and 40 percent of the time by a woman's inability to conceive. Age seems to accelerate the infertility rate with one in three women over the age of 35 having fertility problems. In men, one in 35 is sterile.<sup>1</sup>

According to a report published by Reuters in 1997 based on findings by the National Institutes of Health, sperm counts have been declining by 1.5 million or 1.5% per year since 1938, representing more than a 75% drop in sperm counts since 1938.<sup>2</sup> In addition, researchers have confirmed that sperm motility and quality has been on the decline.

Researchers at the North London Royal Free Hospital found that pregnancy rates were declining despite high sperm counts. Jean Ginsburgh, Consultant Endocrinologist at the hospital, said: "When checking sperm count we found that the men in 1986 were producing 96 million sperm per cubic centimeter, which is a decent sperm count, but we found we had a higher proportion of poor or no motility and the quantity and quality had declined."<sup>3,4</sup>

In the early 1900s, the average sperm count was between 300 and 500 million per ejaculate. Today, the average sperm count has dropped to an alarming average of 30 million per ejaculate, dangerously close to the 20 million sperm count level at which the World Health Organization considers men to be infertile.

The causes of infertility include over exposure to heavy metals, infection, and estrogen-mimicking chemicals found in foods and in plastics (i.e. phthalates). A study published in the May 2003 issue of *Epidemiology* showed that men with the highest levels of monomethyl phthalate were more likely to have abnormally shaped sperm.<sup>5</sup> And heavy metals have been shown to negatively impact fertility by interfering with zinc, a necessary component of sperm production.

In addition, infections such as Chlamydia have been linked to both female and male infertility.<sup>6</sup> Harvey Simon, Associate Professor of Medicine at Harvard asserts that STDs can cause scarring, block sperm passage, and impair sperm function. However, fertility clinics pay little attention to counseling couples on how to reduce their heavy metal burden, their consumption of high estrogen-producing foods and of monomethyl phthalates, or how to prevent contracting STDs by engaging in daily reproductive hygiene practices. By bathing before and after sexual intercourse and by limiting exposure to oral infections transmitted during oral sex, men can significantly reduce their risk of contracting chronic infections and STDs, thereby improving sperm motility and quantity.

<sup>1</sup><http://www.abc.net.au/health/library/stories/2007/05/30/1919840.htm> <sup>2</sup>Fox M. Expert: Sperm Counts Falling Around the World. Reuters; Nov 24 1997. <sup>3</sup>Auger J, et. Al. Decline in Semen Quality Among fertile Men in Paris during the past 20 years. *New Engl J Med.* 332(5); 281-285. <sup>4</sup>Irvine D. Falling sperm quality. *British Med J.* 309;476. <sup>5</sup>Duty, Susan M. 1; Silva, Manori J. 2; Barr, Dana B. 2; Brock, John W. 2; Ryan, Louise 3 4; Chen, Zuying 5; Herrick, Robert F. 1; Christiani, David C. 1 6; Hauser, Russ 1. Phthalate Exposure and Human Semen Parameters. *Epidemiology.* 14(3):269-277, May 2003. <sup>6</sup><http://news.bbc.co.uk/2/hi/health/7044602.stm>

## The Link Between Sodium and Fertility

In addition to heavy metals, environmental chemicals, and infection, low sodium levels have been linked to infertility and embryonic mortality. In animal husbandry, Harris et al., (1986) reported that cows with less than 50 micromoles of sodium per milliosmol in the urine had a higher return to estrus after 24 days following insemination. These data were interpreted to show that low sodium intakes increased embryonic mortality.

In a later study, supplementing lactating cows with 50 grams of salt daily for 30 days after calving increased mean urine sodium concentration from 23 to 74 micromoles per milliosmol and calving rate from 24.2 to 60.6%.<sup>7</sup>

In another study, researchers found that when saliva concentrations were less than 87 millimolars, conception rates averaged 51%. When saliva concentrations were between 131-147 millimolars, conception rates were 70% or greater.<sup>8</sup>

## The Role of Quinton® Marine Plasma in Male & Female Fertility

A study published in 1980 advised women to douche with a sodium bicarbonate solution 30 to 60 minutes before intercourse to improve electrolyte potential in the vagina and to positively shift vaginal pH. Of the 93 infertile women that participated in the study, 31 became pregnant before the end of the study.<sup>9</sup> Additional research found that sodium bicarbonate improved cervical mucous viscoelasticity and sperm penetration, when compared with basic NaCl.<sup>10</sup> Research done on pigs confirmed that conception rates improved when pigs exhibited strong vaginal conductivity readings, suggesting that vaginal conductivity, a largely trace mineral dependent phenomenon, played a significant role in predicting and promoting conception.<sup>11, 12</sup>

In men, sodium bicarbonate originates mainly from the seminal vesicles, and plays a critical role in sperm motility, largely by activating sperm adenylate cyclase. Published research confirmed a direct correlation between low levels of sodium bicarbonate in seminal plasma and decreased sperm motility in infertile male patients, probably due to decreased levels of adenylate cyclase.<sup>13, 14</sup>

Quinton® Marine Plasma (QMP) has high concentrations of naturally occurring organic sodium bicarbonate (NaHCO<sub>3</sub>) supported in a rich soup of other activated organic minerals and trace elements.<sup>15</sup> For couples focused on conception, oral use of Quinton® marine plasma in men and vaginal use in women may support fertility. In women, gently saturating the vagina and cervix with organic sodium bicarbonate may positively impact vaginal ecology, and increasing vaginal mucus conductivity thereby promoting conception. QMP facilitates tissue hydration, modulates tissue pH, promotes the growth of probiotics, and optimizes enzyme activity – all critical to maintaining a healthy vaginal flora.<sup>16</sup>

## Maintaining a Balanced Vaginal BioTerrain

The probiotics living inside the vaginal terrain play a critical role in maintaining a balanced pH and keeping opportunistic infections in check, including STDs and Candida. When the natural flora is upset, the probiotics no longer compete with opportunistic infections for food, making it more susceptible to infections during intercourse and to the overgrowth of Candida.

Uncontained Candida infections can cause inflammation and irritation inside the vaginal wall, leaving the woman more vulnerable to contracting STDs during subsequent intercourse. Millions of women turn to over-the-counter anti-fungal medications to address their Candida infections, only to find that the anti-fungals create a vicious cycle of frequent yeast infections by killing off the remaining vaginal flora needed to keep the Candida in check post treatment.

As many as 70% of women suffer from chronic yeast infections. One study blamed the overuse of spermicidal contraceptives for the overgrowth of Candida.<sup>17</sup> Another study investigated the emergence of a strain of Candida resistant to over-the-counter anti-fungal Candida medications.<sup>18</sup> The overuse of oral antibiotics and vaginal anti-yeast creams further compound the problem by directly attacking the probiotic communities within the vagina. Once the probiotic communities are destroyed and STDs have a chance to take hold, infertility is not far behind. Infertility in women has been directly linked to such STDs as Chlamydia and HPV.

<sup>7</sup> Harris, D.J., J.D. Allen and I.W. Caple. 1986. Effects of low sodium nutrition on fertility of dairy cows. *Proceedings of the Nutritional Society of Australia* 11:92. <sup>8</sup> Cromwell, G.L., D.D. Hall, G.E. Combs, O.M. Hale, D.L. Handlin, J.P. Hitchcock, D.A. Knabe, E.T. Kornegay, M.D. Lindeman, C.V. Maxwell, and T.J. Prince. 1989. Effects of dietary salt level during gestation and lactation on reproductive performance of sows: A cooperative study. *J. Anim. Sci.* 67:374. <sup>9</sup> Ansari AH, Gould KG, Ansari VM. Sodium bicarbonate douching for improvement of the postcoital test. *Fertil Steril.* 1980 Jun;33(6):608-12. <sup>10</sup> Everhardt E, Dony JM, Jansen H, Lemmens WA, Doesburg WH. Improvement of cervical mucus viscoelasticity and sperm penetration with sodium bicarbonate douching. *Hum Reprod.* 1990 Feb;5(2): 133-7. <sup>11</sup> Zink, M.F., Diehl, JR. Efficacy of Using Vaginal Conductivity as an Indicator of the Optimum Time to Breed in Swine. *J Anim Sci* 1984. 59: 869-874. <sup>12</sup> McCabe CT, Sprowson GW, Holmes DH. The conductivity of cervical mucus as a predictor of ovulation in beef cows synchronized with cloprostenol. *South African J. Anim Sci* 10:119. <sup>13</sup> Okamura N, Tajima Y, Soejima A, Masuda H, Sugita Y. Sodium bicarbonate in seminal plasma stimulates the motility of mammalian spermatozoa through direct activation of adenylate cyclase. *J Biol Chem*, 1985 Aug 15;260(17):9699-705. <sup>14</sup> Okamura N, Tajima Y, Ishikawa H, Yoshii S, Koiso K, Sugita Y. Lowered levels of bicarbonate in seminal plasma cause the poor sperm motility in human infertile patients. *Fertil Steril*, 1986 Feb;45(2):265-72. <sup>15</sup> Dittman R, Brugioni R. Evolutionary Development of Our Internal Ocean: Restoring Bio-Terrain with Quinton Marine Plasma. *Explore!* Nov 2006. <sup>16</sup> Dittman R. Bio-Terrain, Evolutionary Biology, and the Practice of Medicine in the Early 1900's: An Intro to René Quinton's Marine Plasma. *Explore!* July 2006. <sup>17</sup> Richard H. Beigi, MD, MSc\*, Leslie A. Meyn, Donna M. Moore, Marijane A. Krohn, PhD and Sharon L. Hillier, PhD. Vaginal Yeast Colonization in Nonpregnant Women: A Longitudinal Study. *Obstetrics & Gynecology* 2004;104:926-930 <sup>18</sup> Barun Mathema, Emily Cross, Erica Dun, Steven Park, Jane Bedell, Brenda Slade, Martha Williams, Lee Riley, Vishnu Chaturvedi, and David S. Perlin. Prevalence of Vaginal Colonization by Drug-Resistant *Candida* Species in College-Age Women with Previous Exposure to Over-the-Counter Azole Antifungals. *Clinical Infectious Diseases* 2001; 33:e23-7

Vaginal probiotic suppositories have been shown to help to recolonize healthy micro-flora within the local vaginal environment and in some cases has successfully addressed existing vaginal bacteriosis and *Candida*.<sup>19,20</sup> Specifically, the healthy colonization of lactobacillus in the vaginal flora directly prevents vaginal bacteriosis and *Gardnerella vaginalis*.<sup>21</sup>

Since QMP is a pre-biotic, women with a history of yeast infections may want to alternate between inserting a full spectrum probiotic suppository and washing the vaginal area with QMP in order to help to recolonize the micro-flora within the urogenital environment. The urogenital environment of a healthy woman contains approximately 50 distinct species of organisms, mostly in the lactobacillus family, which differ depending of a woman's reproductive stage and race, and based on antibiotic, spermicide, and fungicide use.

Interestingly, there is a profound synergistic relationship between probiotic health and tissue mineral absorption. Research suggests that lactobacillus promotes the uptake of calcium by cells, while other research suggests that lactobacillus corrects the malabsorption of trace minerals.<sup>22,23</sup> In addition, excessive levels of certain inorganic minerals like copper have been linked to *Candida* overgrowth due to the relationship between copper and estrogen production.

Environmental exposure to copper has increased dramatically over the last several decades with the proliferation of copper pipes, oral contraceptives,<sup>24</sup> copper IUDs, the overuse of estrogens in meat, and the presence of estrogen-like compounds found in foods like soy and in plastic packaging. The presence of excess estrogen facilitates the absorption of copper within tissues and vice versa.

Copper is an important anti-viral mineral when found in its organic<sup>25</sup> bio-available form. However, when excessive inorganic copper enters the body, it is stored in the liver, removing it from systemic circulation – where it is needed to perform its anti-viral activities. The inorganic copper sits on the outside of the cellular membrane, congesting and blocking the membrane from absorption of organic copper.

A critical component of optimal reproductive hygiene is the detoxification of toxic levels of inorganic minerals such as copper and iron and their replacement with organic

bioavailable minerals that support the internal bioterrain. Therefore, ironically, someone that is said to be “copper toxic” is actually someone that has toxic levels of inorganic copper congesting the liver and yet lacks available stores of organic copper needed to prevent the overgrowth of bacteria and yeast in the vaginal bioterrain.

Since copper and zinc are antagonistic minerals, one way to balance out copper toxicity is to increase the intake of zinc and other synergistic trace minerals.<sup>26</sup> Evidence suggests that by supplementing with the organic source of any given mineral enhances the detoxification of stores of the same mineral in its inorganic form. As both a pre-biotic and a rich source of organically processed trace minerals, QMP is a critical to maintaining healthy vaginal flora, replenishing organic mineral levels, and increasing vaginal mucosal conductivity. In fact, published research has shown that drinking seawater is an effective way of reducing heavy metal toxicity.

### Guidelines for Safe Douching

Feminine hygiene practices date back thousands of years. The word “douche” is French for shower. Walk into any drug store, and you are likely to find dozens of feminine douches lining the shelves. While douching practices have steadily declined in recent years, many women still use douching as a contraceptive after intercourse and as a way of cleansing after menstruation.

When a woman is menstruating the cervix is partially opened. Any infection in the vagina can easily be pushed up through the cervix into the vagina. In fact, douching has been associated with pelvic inflammatory disease, vaginal bacteriosis, cervical cancer, low birth weight babies, preterm birth, HIV transmission, STDs, ectopic pregnancies, recurrent *Candida*, and infertility.<sup>27,28,29,30,31</sup>

Traditional water and vinegar douches wash away the healthy bioterrain of the vagina, leaving it further vulnerable to opportunistic infections caused by wearing synthetic underwear, improper hygiene practices, and oral / sexual intercourse. In addition, consistent use of anti-bacterial douches have been shown to kill off healthy populations of lactobacillus within the vaginal terrain, leaving it vulnerable to colonization by opportunistic infections.<sup>32</sup>

<sup>19</sup> Reid G. Probiotic agents to protect the urogenital tract against infection. *Am J Clin Nutr*. 2001 Feb; 73(2 Suppl):437S-443S. <sup>20</sup> Drago L, De Vecchi E, Nicola L, Zucchetti E, Gismondo MR, Vicariotto F. Activity of a Lactobacillus acidophilus-based douche for the treatment of bacterial vaginosis. *J Altern Complement Med*. 2007 May; 13(4): 435-8. <sup>21</sup> Newton, ER, et al. Predictors of the vaginal microflora. *Amer J of Obstet & Gyn*. 184(5):845-855, April 2001. <sup>22</sup> Gilman, J, Cashman, K. The Effect of Probiotic Bacteria on Transepithelial Calcium Transport and Calcium Uptake in Human Intestinal-like Caco-2 Cells. *Curr. Issues Intestinal Microbiol*. 7: 1-6. Online journal at www.ciim.net <sup>23</sup> Famularo G, De Simone C, Pandey V, Sahu AR, Minisola G. Probiotic lactobacilli: an innovative tool to correct the malabsorption syndrome of vegetarians? *Med Hypotheses*. 2005;65(6):1132-5. Entrez PubMed 16095846 <sup>24</sup> Crews MG, et. Al. Effects of oral contraceptive agents of copper and zinc balance in young women. *Amer J of Clin Nutr*, 1980 Sep;33(9):1940-5. <sup>25</sup> The word “organic” does not refer to copper growth without pesticides as it is commonly understood. Rather, organic here refers to the biochemistry of copper where the copper atom contains a carbon atom. <sup>26</sup> L.X. Rojas, L. R. McDowell, et. al. Relative bioavailability of two organic and two inorganic zinc sources fed to sheep. *J Anim Sci* 1995. 73:1202-1207. <sup>27</sup> Zhang J, Thomas AG, Leybovich E. Vaginal douching and adverse health effects: a metaanalysis. *Am J Public Health* 1997; 87:1207-11. <sup>28</sup> Wolner-Hanssen P, Eschenbach DA, Paavonen J, et al. Association between vaginal douching and acute pelvic inflammatory disease. *JAMA* 1990;263:1936-41. <sup>29</sup> Scholes D, Stergachis A, Ichikawa LE, et al. Vaginal douching as a risk factor for cervical Chlamydia trachomatis infection. *Obstet Gynecol* 1998;91: 993-7. <sup>30</sup> Fiscella K, Franks P, Kendrick JS, et al. The risk of low birth weight associated with vaginal douching. *Obstet Gynecol* 1998;92:913-17. <sup>31</sup> Baird DD, Weinberg CR, Voigt LE, et al. Vaginal douching and reduced fertility. *Am J Public Health* 1996;86:844-50. <sup>32</sup> Pavlova SI, Tao L. In vitro inhibition of commercial douche products against vaginal microflora. *Infect Dis Obstet Gynecol*. 2000; 8(2): 99-104.

Vaginal mucous membranes are an extension of the body's immune system, providing the first line of defense against infection. When the mucous membranes are washed away, dried out, or lack the necessary nutrients and probiotics to maintain balance, ascending infections have the opportunity to colonize the uterus, especially during menstruation when the cervix is slightly open. And since uterine infections have been linked to premature birth, spontaneous abortion, infertility, and reproductive cancers, practicing female reproductive hygiene is critical.

We should not conclude however that douching at certain times during a woman's cycle is unhealthy. Douching can be productive, provided that it is done in the middle of the cycle when the cervix is closed, the pressure used is gentle, and the solution supports the vaginal bioterrain. There are several ways to support the vaginal bioterrain. I recommend using a gentle vaginal spray or douche containing QMP as a healthy way of cleansing, remineralizing, and supporting the healthy formation of vaginal mucous.

In the event of a known *Candida* infection, I recommend both probiotic suppositories and a diet rich in steamed vegetables (ideally onions, garlic, scallions, radish, daikon, asparagus, and beets) and low in carbohydrates as an effective way of rebalancing the vaginal terrain. I also recommend drinking yogi tea in the morning and chamomile tea at night as well as a combination of Sri Lankan, Chinese, and Russian herbal formulations for removing what the Chinese traditionally refer to as "dampness" and "heat" in the "lower jiao".

### The Practice of Female Sexual Hygiene

French Bidets were invented as a way of washing the male and female genitalia, and anus. Bidets are a great way of practicing daily hygiene, in part, because they do not force water high up into the vagina, but rather are designed to wash the base of the vagina and the area around the vagina and anus. However, most U.S. households do not have a traditional Bidet. Therefore, the best way to practice vaginal hygiene is to simply bathe in a bath containing a cup of basic table salt or sea salt and a tablespoon of either hydrogen peroxide or Potassium Iodide. I recommend alternating between hydrogen peroxide and potassium iodide, since they cannot be used together.

The iodide and hydrogen peroxide effectively kills a large percentage of opportunistic microorganisms, while the salts inhibit bacterial growth. Since the iodide, hydrogen peroxide, and salt solution is extremely dilute, it works by taking the bacterial load off of the vagina, thereby allowing the vaginal flora to maintain its delicate balance naturally. Note: *Since Potassium Iodide can be toxic if ingested, this simple hygiene bath is designed for bathing only and should never be inserted as a douche into the vagina.*

It is recommended that couples take a hygiene bath before and after intercourse as a way of reducing transmission of infection. According to the Oxford Textbook of Medicine (1984; p. 465), communities that practice ritual cleansing before and after intercourse have a reduced incidence of contracting STDs. By reducing the overall opportunistic bacterial and viral load entering the vagina, the natural vaginal flora is able to effectively compete with the entering opportunistic bacteria – providing a critical first line of defense against STDs and vaginal bacteriosis strains.

One common mistake is that women have intercourse during their menstrual cycle when the cervix is opened and more susceptible to infection. During menstruation, it is best to refrain from intercourse and douching altogether. In addition, since fingernails culture some of the most virulent bacterial and viral strains, finger insertion during sexual foreplay can be dangerous. According to a study published in the December 1985 issue of *Lancet* found that prostitutes that did not allow "digit penetration" during intercourse were remarkably less likely to contract HIV.

Careful fingernail hygiene practices should be followed to reduce the chances of inserting a dangerous vaginal bacteriosis strain into the vagina. Since the skin maintains its own probiotic strains that are designed to keep infections at bay, it is important not to use anti-bacterial soaps that unnecessarily kill off helpful probiotic strains.

*Garden of Life* markets a gentler "tub-of-soap" within their *Clenzology*® product line, originally developed by Dr. Kenneth Seaton, designed to kill the dangerous pathogenic microbes underneath the fingernails, while leaving the beneficial bacteria intact. By using the "finger-friendly" *Clenzology* soap on a daily basis, couples can reduce the likelihood of finger to vagina infections.

In addition to daily hygiene baths and fingernail soaps, 15 minutes of direct sunlight on the vaginal area can also help to reduce bacterial and yeast infections. The same UVA light that comes from the sun is used to purify drinking water and to clean surfaces in laboratories, making sunbathing the most inexpensive way of reducing vaginal infections. And since bacteria, fungi, and yeast thrive in moist environments, it is always best to wear underwear and clothing made from natural breathable fabrics.

The chart on the following page summarizes ways to maintain a healthy vaginal flora, promote fertility, and to prevent the contraction of STDs.

#### About the Author

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## Hygiene Tips

1. *Have you and your partner take a bath prior to and immediately following intercourse. Prepare a hot bath with 2 teaspoons of Potassium Iodide solution and 6 ozs (180 g) of table salt (sodium chloride) and soak in bath for 5 minutes or more.*
2. *Wash underneath the fingernails several times per day using a gentle finger-friendly soap such as the Clenzology<sup>®</sup> hand soap marketed by Garden of Life. Overuse of anti-bacterial soaps can imbalance skin flora, leaving the skin vulnerable to opportunistic infections.*
3. *Refrain from having intercourse during a woman's menstrual cycle, when the cervical mucous plug is open and therefore more susceptible to infection.*
4. *Use baby wipes to wipe after each bowel movement – being sure to wipe from front to back to avoid introducing fecal bacteria into the vagina.*
5. *Sunbathe the vagina for 10 to 15 minutes (no more) at least once a week to inhibit the over growth of yeast and bacteria.*
6. *Seek to reduce overall psycho-emotional stress, which leads to stress-induced dehydration and tissue acidification. To remedy the effects of unavoidable psycho-emotional stress, drink Quinton<sup>®</sup> Marine Plasma and pure water to re-hydrate the tissues.*
7. *Reduce intake of simple carbohydrates, coffee, and alcohol which shift vaginal pH and promote the overgrowth of vaginal yeast, bacterial, and fungal infections.*
8. *Eat an anti-yeast diet rich in steamed vegetables and broiled low fat meats to reduce systemic yeast.*
9. *Wear non-synthetic underwear to allow the vaginal area to aerate throughout the day.*
10. *Know your body: You may be allergic to latex condoms, common household chemicals, synthetic fabrics, and personal care products. Using them may cause an inflammatory response, which places physiological stress on the body.*
11. *Do not use commercially available water & vinegar or anti-bacterial douches as this can destroy vaginal flora leaving the vaginal area susceptible to infection.*
12. *Consider using contraceptives that do not elevate tissue copper levels such as birth control pills and copper IUDs.*
13. *Consider using contraceptives that do not contain spermicides and to address yeast infections naturally without using OTC fungicides that can lead to more virulent resistant strains later.*

