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Short Communication

# Impact of the Vaginal Microbiota on Women's Health

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Over the years, it has been discovered that the vaginal microbiota is mainly composed of Lactobacillus species. But in itself, first we would have to define what is the microbiota as the set of microorganisms that are located normally in different places of the human body, its main role is to maintain the balance necessary to maintain health since they confer resistance to invasion by pathogens through various mechanisms [1].

The normal vaginal microbiota constitutes one of the first lines of defense against colonization by opportunistic pathogens. It has been proven that during the passage of time in a woman, the vaginal microbiota undergoes changes associated with periods such as puberty and menopause, and recently had a boom during pregnancy, due to its association with bacterial vaginosis [2], preterm birth, premature rupture of membranes and a high risk than maternal-fetal morbidity [3].

The vaginal microbiota can be affected by considerably reducing the presence of Lactobacillus with the use of intrauterine devices or spermicides, contributing to the appearance of vaginitis [4]. Albert Döderlein was the pioneer in discovering the importance of the production of lactic acid in the vagina by bacteria, Krönig in 1895 described lactobacilli as curved rods and they were called *Mobilincus curtisii* [5].

It is estimated that more than 70% of women are predominantly colonized by *Lactobacillus* spp., These play an important role because the presence or absence of certain species is considered as a biomarker of great importance to assess the pathological and normal state of the vagina [6]. The background on ethnicity is interesting since it has been proven that in Caucasian women *L. iners* predominates, in Asian women by L. crispatus and in Hispanic women *L. jenseni* [7].

The complementary mechanisms used by the microbiota are specific adhesion to the epithelium, production of antimicrobial compounds and coaggregation with pathogens. As mentioned before, the vaginal microbiota plays an extremely important role in the development of bacterial vaginosis, which has a clinical picture of leucorrhoea, fishy smell, vaginal and / or perineal itching and dyspareunia [8].

Research has been conducted regarding sequencing (which is a set of methods and techniques used to determine the exact order of the base pairs of a specific region of DNA) of the high-performance rRNA 16S gene in order to examine the composition and abundance of bacterial species, concluding that there are at least five main types of vaginal microbiota called types of community status (CST) [9].

Four of these CSTs are dominated by *Lactobacillus crispatus* (CST-I), *L. gasseri* (CST-II) *L. iners* (CST-III), or *L. jensenii* (CST-V) and one, CST-IV, does not contain a significant number of lactobacillus but it is composed of a polymicrobial mixture of strict and facultative anaerobes including species of the genera *Gardnerella, Atopobium, Mobiluncus, Prevotella* and other taxa in the order *Clostridiales* [10,11].

Among the different species of lactobacillus studied, it is estimated that there are 120 species and more than 20 species have been found in the vagina. In addition, there is a relationship between whether *Lactobacillus crispatus* increases the properties of

cervicovaginal mucus against the human immunodeficiency virus, resulting in a protective effect against this virus, however, Lactobacillus iners facilitates penetration through the cervicovaginal mucosa [12].

The Nugent classification has been used for years, which is a microscopy scale that assesses the presence of *Lactobacillus, Bacteroides* or *Gardnerella* and *Mobilincus*. Depending on the score obtained if it is 1 - 3 it is considered normal vaginal microbiota, 4 - 6 points are considered as intermediate microbiota and 7-10 is considered as positive for bacterial vaginosis [13].

The aforementioned classification has been of great importance, however, with the advances in molecular techniques and focusing the research line, it is and will be of great help in the health of women, because they use of probiotics could be considered a strategy fundamental to reduce the risk of incidence of HPV which is 99% of cases is the cause of cervical cancer and is estimated to cause about 266,000 deaths annually, according to data from the World Health Organization.

In conclusion, thanks to the development of molecular biology, there has been a great change in the health landscape of the genital tract, because the association of certain Lactobacillus present, could be considered within a therapeutic scheme to reduce the risk of comorbidities as acquisition of infections of sexual transmission such as HPV, HIV, *Neisseria gonorrhoeae* and *Chlamydia* spp. that could occur in the population.

## Bibliography

1. Smith SB and Ravel J. "The vaginal microbiota, host defence and reproductive physiology". *The Journal of Physiology* 595.2 (2017): 451-463.

2. Leitich H., *et al*. "Bacterial vaginosis as a risk factor for preterm delivery: A meta-analysis". *American Journal of Obstetrics and Gynecology* 189.1 (2003):139-147.

3. Practice Bulletin. "Management of Preterm Labor". *Obstetrics and Gynecology* 119.6 (2012).

4. Schreiber CA., *et al*. "Effects of long-term use of nonoxynol-9 on vaginal flora". *Obstetrics and Gynecology* 107.1 (2006): 136-143.

5. Martín R., *et al*. "La microbiota vaginal: Composición, papel protector, patología asociada y perspectivas terapéuticas". *Enfermedades Infecciosas y Microbiología Clínica* 26.3 (2008): 160-167.

6. Martin DH. "The microbiota of the vagina and its influence on women's health and disease". *The American Journal of the Medical Sciences* 343.1 (2012): 2-9.

7. Borgdorff H., *et al*. "The association between ethnicity and vaginal microbiota composition in Amsterdam, the Netherlands". *PLoS One* 12.7 (2017): e0181135-e0181135.

8. Medisan 17.8 (2013): 4010-4109.

9. Petrova MI., *et al*. "Lactobacillus species as biomarkers and agents that can promote various aspects of vaginal health". *Frontiers in Physiology* 6 (2015):1-18.

10. Shipitsyna E., *et al*. "Composition of the Vaginal Microbiota in Women of Reproductive Age - Sensitive and Specific Molecular Diagnosis of Bacterial Vaginosis Is Possible?" *PLoS One* 8.4 (2013): e60670.

11. Lamont RF., *et al*. "The vaginal microbiome: New information about genital tract flora using molecular based techniques". *BJOG: An International Journal of Obstetrics and Gynaecology* 118.5 (2011): 533-549.

12. Nunn Kenetta L., *et al*. "Enhanced trapping of HIV-1 by human cervicovaginal mucus is associated with Lactobacillus crispatus-dominant microbiota". *MBio* 6.5 (2015): e01084-e01015.

13. Jespers V., *et al*. "Quantification of bacterial species of the vaginal microbiome in different groups of women, using nucleic acid amplification tests". *BMC Microbiology* 12.1 (2012): 83.

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