

Newsletter December 2016

Vaginal microbiome is crucial to wound healing.

Previous newsletters have given the information, that curing bacterial vaginosis is essential to avoid virus infections (HIV and HPV). There are also indications, that treatment of BV will improve wound healing, e.g. cervical lesions. A recent publication by Zevin and collaborators has added new knowledge in this area.

The advanced techniques showed, that the vaginal biome was dominated by either *Gardnerella vaginalis* (the classical casing agent for BV) or by *Lactobacillus iners*. But there was a large discrepancy between the finding of BV by classical methods and by these advanced methods. This means that many women that were not diagnosed with BV with the classical methods, in fact had a biome characterized by *Gardnerella vaginalis*.

The new techniques allow the researchers to determine the dominant biochemical processes. In the *Lactobacillus* dominated vaginas the major biochemical activity relate to the production of lactic acid. In the *G. vaginalis* dominated vaginas there was activity to degrade and uptake several carbohydrate including glycogen and starch. Most interesting is the finding that activities related to development and strengthening of the epithel – surface – were 7-15 times higher in the *Lactobacillus* group compared to the *G.vaginalis* group. The effect correlated well with the advanced grouping of the women as having BV or not, but not with the grouping related to classical criteria.

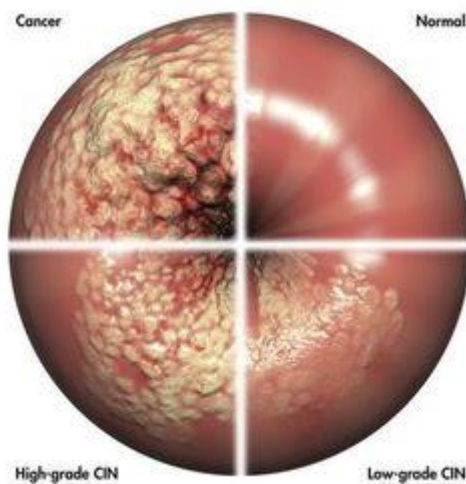
Finally the scientists investigated wound healing in a human cell layer in the presence of solutions from a *G.gardnerella* resp. *Lactobacillus* culture. While *Lactobacillus* had no influence, the *Gardnerella* solution significantly reduced wound healing.

**The learning from this study:**

A woman may have a bacterial vaginosis biome without being diagnosed with bacterial vaginosis by the methods normally used in clinical practice.

Wound healing (e.g. related to virus infection) is greatly impaired by the *Gardnerella vaginalis* (bacterial vaginosis) biome.

A study in Vietnam has showed, that LadyBalance has a good effect on cervical lesions, in compliance with the results mentioned here.



Details of the study: Zevin and collaborators have studied two different groups:

C1: Ten women from Kenya, who were not-infected partners to HIV positive men. BV was diagnosed through the Nugent score.

C2: 31 women in North America, 27 of them Black participants in a HIV prevention study. BV was determined both by Nugent score and by the Amsel criteria – the standard in clinical practice.

The proteome (a map of active proteins produced by the bacteria) was determined by mass spectroscopy, while the bacterial community composition was determined by 16S rRNA gene sequencing

Reference: Zevin et al. (2016): Microbiome composition and function drives wound healing impairment in the female genital tract. PLoS Pathogen. Sept 12(9) e1005889