

Ghent University microbiome study - Explained

HeiQ Chrisal ordered a study at the Lab of Microbiology of the Ghent University to investigate the effect of Synbio® Body Cream on the skin microbiome. The study focused on two aspects:

- Demonstrating that the probiotics in the product are actually alive and active on the skin
- Measuring the effect on the microbiome of each test individual

This study is part of the larger microbiome project within HeiQ Chrisal, where the benefits of synbiotic skincare will be investigated. These benefits include establishing and maintaining a healthy microbiome with a reduced risk of infections or skin damage, and the improvement of the overall skin condition.

1. Probiotic activity on the skin

From microbiological skin sampling at both HeiQ Chrisal lab and Ghent University, it was proven that the Synbio® probiotics remain active on the skin up to 5 days after the last product application. This indicates that the product needs to be applied at least twice a week in order to profit from a continuous probiotic benefit. As daily activities or personal hygiene may influence the activity of the probiotics, a once-a-day application is recommended.

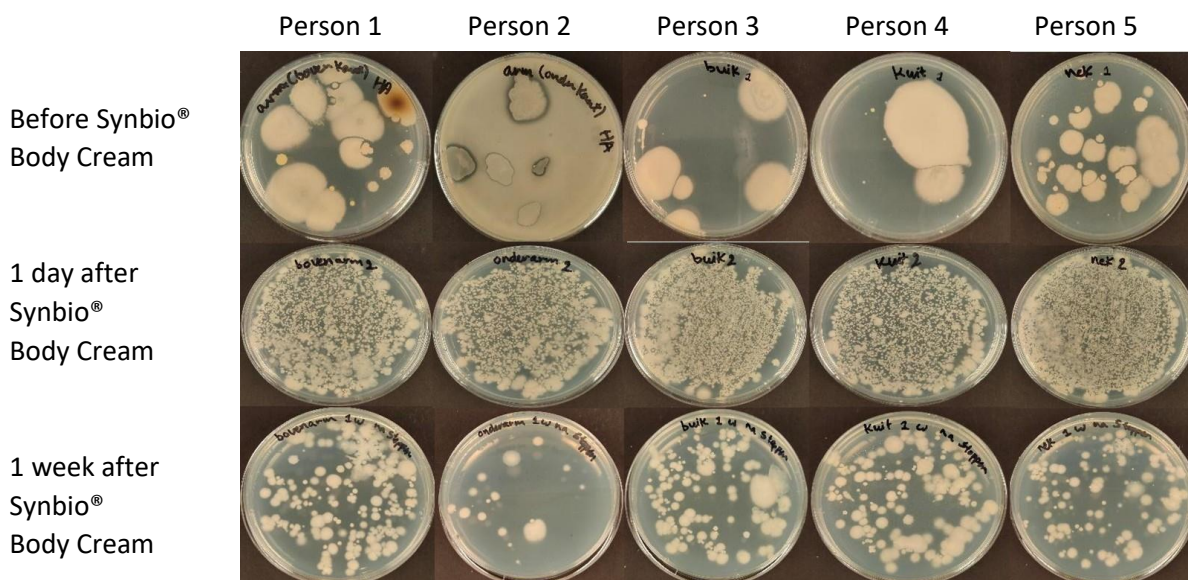


Fig 1. Total count on skin samples. 1 day after Synbio® Body Cream application the count of live probiotic *Bacillus* on the skin samples has drastically increased. Seven days after product application the probiotic *Bacillus* count is gradually decreasing. Until day 5 after product application the probiotic count remained sufficiently high.

2. Influence on the skin microbiome

As stated in the Ghent University report, Synbio® body cream application was able to modify the skin microbiome with all test individuals. Although the microbiome composition was never drastically changed (all test persons still had their own typical microbiome before and after product application), there was a clear trend with all test individuals. Synbio® Body Cream had an impact on the skin microbiome by introducing a high count of probiotic *Bacillus* species. This was at the expense of the following microbiome organisms:

- **Anaerococcus:** Most of the species in this genus can be found as part of the normal flora of the skin, human vagina, nasal cavity and oral cavity. However, it is a pathogen of humans found in abscesses, chronic wounds, vaginal discharge, foot ulcers. It can be present in urinary tract infections, chronic ulcers, pleural empyema, blood infections, and soft tissue infections. Farther more, strains of *Anaerococcus* were found in the armpit microbiota suggesting some species in this genus could play a role in axillary odor.
- **Cutibacterium (former Propionibacterium):** nonsporulating, gram-positive anaerobic bacilli that are considered commensal bacteria on the skin. They are usually nonpathogenic but are associated with acne vulgaris. *Cutibacterium* species can also cause numerous other types of infections, including endocarditis, postoperative shoulder infections, and neurosurgical shunt infections
- **Rothia:** Gram-positive, aerobic, rod-shaped and non-motile bacterial genus from the family of Micrococcaceae. *Rothia* are found as colonizers of the human oral cavity and have been isolated from dental plaque and in cases of periodontal disease. *Rothia* bacteria can cause disease in humans and immunosuppressed humans.
- **Staphylococcus:** Gram positive, rod-shaped bacteria comprising about 40 species, of which most cannot cause disease and reside normally on the skin and mucous membranes of humans and other animals. However, *Staphylococcus* can cause a wide variety of diseases in humans and animals through either toxin production or penetration. The Multi Resistant *Staph Aureus* (MRSA) is one of the most frequent causes of hospital acquired infections.

Conclusion

The study at Ghent University has shown that application of Synbio® Body Cream introduces live probiotic *Bacillus* species on the skin that remain active up to five days after last product usage. Furthermore, DNA based microbiome analyses have shown that the product can actively reduce the risk of problems with micro-organisms that are related to skin infections, acne, ulcers or even body odour formation.

The individual microbiome diversity remained intact, meaning that the microbiome is not too drastically changed. Synbio® Body Cream only improves the level of good microbiome members in order to make our skin more healthy.

This research demonstrated that Synbio® Body Cream is able to positively influence the skin microbiome, improving its composition in order to lower the risk of several microbiome related skin issues.

By Dr. Robin Temmerman
CEO HeiQ Chrisal