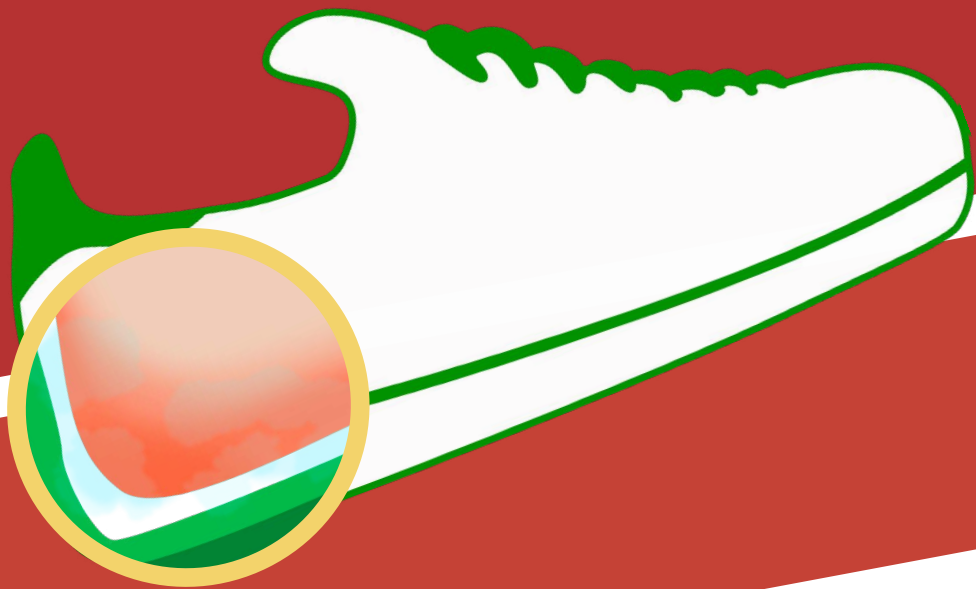


What happens inside a shoe made with a synthetic insole and lining?

How a “normal” process can start to have severe consequences for foot odor.



1 Bacteria multiply inside the shoe

The foot shows an increase of temperature, pH and humidity and, thus, generating a wide bacteria population.

2 More perspiration is produced

The body mechanism for cooling itself becomes overactive and the eccrine glands produce more **perspiration**.

*The situation can get worse in case of an excessive sweating, also called **Hyperhidrosis** (4/5 times the normal value) usually caused by:*

- Emotional factors (anxiety, stress)
- Medical conditions and prescription drugs (i.e. cancer, infectious diseases)
- Hereditary predisposition

3 More perspiration = more bacteria

More perspiration means more amino acids and therefore **more bacteria** inhabiting the foot skin flora.

Perspiration and its components are the primary source of nutrients for the foot microbial population.

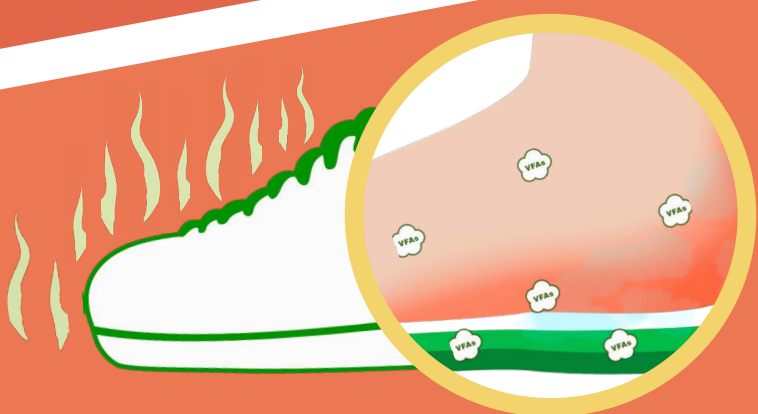
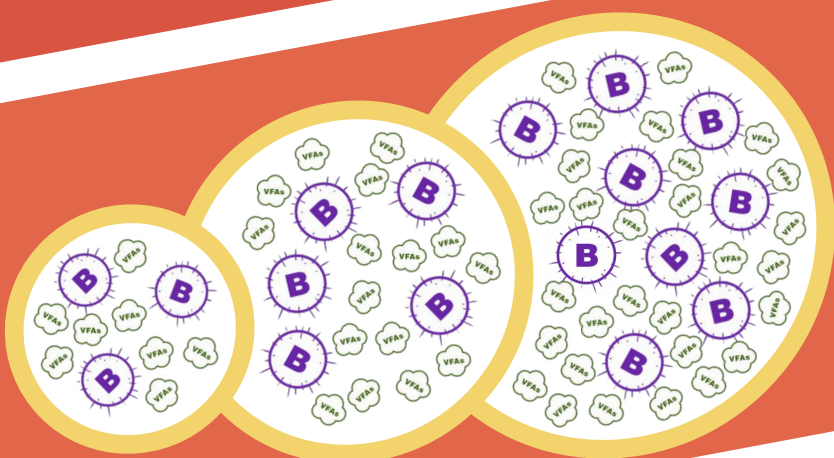
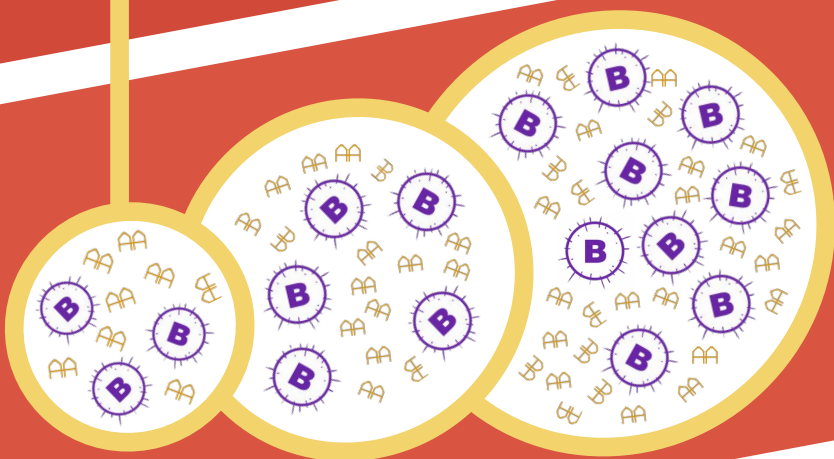
4 More amino acids = More volatile fatty acids

A higher quantity of bacteria and of organic compounds (amino acids) generates a **larger chemical reaction** that results in a bigger production of VFAs, responsible for unpleasant odor.

5 Foot odor becomes detectable

Offensive odors/acid notes are generated by the higher number of fatty acids (isovaleric acid, butyric acid and isobutyric acid) and passed on to the foot.

*Excessive perspiration emanating an offensive odor is called **Bromhidrosis**.*



From bad to worse, day after day

6 No absorption

The synthetic material of the internal part of the shoe (insole, lining) doesn't absorb the **excess perspiration** produced by the foot.

The unpleasant perspiration can make people embarrassed and uncomfortable.

7 An incubator for "smelly" bacteria

The shoe remains humid and wet even after the foot is removed. The shoe is the perfect habitat for bacteria **proliferation**.

In a used shoe it is possible to find up to 1 million of those bacteria responsible for foot odor per cm². 98% of the plantar bacteria are Staphylococcus spp.

8 From the shoe to the foot

Whenever the foot enters the shoe, the bacteria population, that has grown in the synthetic insole and the lining, attacks the **clean foot**, contaminating it.

Washing our feet everyday is necessary but not sufficient to defeat foot odor.

9 A vicious circle

Day after day, the quantity of bacteria in the shoe increases, more VFAs are produced and stronger offensive odors come out of the shoe.

Shoe disinfectants or typical DIY don't solve the situation.

The "odor" problem comes from the shoe and not from the foot.

