Biofilme in der Humanmedizin
Biofilms in medicine

Biofilme sind extra- und intra – zelluläre **Schleimschichten (Filme) aus Mikroorganismen** z. B. aus Bakterien, Virusarten, Archeaen, Protozoen, Pilzen, Virionen und Mikroalgen.
Biofilms are extracellular (and sometimes intracellular) **slime layers (films) of microorganisms** formed by bacteria, viruses, protozoa, fungi, or microalgae.

Biofilme sind **„Cities of Microbes".** Es sind **symbiogenetische Gesamt - Lebewesen** zu deren Existenz jeder einzelne der beteiligten **intrazellulären und extrazellulären** Mikroorganismen **und der Wirtszellen** auf seine eigene Art beiträgt.
Biofilms are "**Cities of Microbes**" that interact symbiotically with host cells.

Biofilme sind bei **Tier** und **Mensch** **relativ antibiotika-resistent,** ganz im Gegensatz zu ihren frei lebenden, sogenannten **planktonischen** Varianten.
Biofilms in animals and humans are **relatively antibiotic-resistant**, unlike their wild so-called planktonic (free living) microbial variants.

Die **Bakterien – Gruppensprachen** und das übergeordnete **Esperanto der Biofilme** werden **Quorum sensing** genannt**.**
The universal language ("**Esperanto**") of microbes in biofilms is called quorum sensing**.**

Biofilme in der Medizin, biofilms in medicine http://www.erlebnishaft.de/kommentbiofilmmed.pdf

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„Acute infections caused by pathogenic bacteria have been studied extensively for well over 100 years. These infections killed millions of people in previous centuries, but they have been combated effectively by the development of modern vaccines, antibiotics and infection control measures. Most research into bacterial pathogenesis has focused on acute infections, but these diseases have now been supplemented by a new category of chronic infections caused by bacteria growing in slime-enclosed aggregates known as biofilms. Biofilm infections, such as pneumonia in cystic fibrosis patients, chronic wounds, chronic otitis media and implant- and catheter-associated infections, affect millions of people in the developed world each year and many deaths occur as a consequence. In general, bacteria have two life forms during growth and proliferation. In one form, the bacteria exist as single, independent cells (planktonic) whereas in the other form, bacteria are organized into sessile aggregates. The latter form is commonly referred to as the biofilm growth phenotype. Acute infections are assumed to involve planktonic bacteria, which are generally treatable with antibiotics, although successful treatment depends on accurate and fast diagnosis. However, in cases where the bacteria succeed in forming a biofilm within the human host, the infection often turns out to be untreatable and will develop into a chronic state. The important hallmarks of chronic biofilm-based infections are extreme resistance to antibiotics and many other conventional antimicrobial agents, and an extreme capacity for evading the host defences. In this thesis, I will assemble the current knowledge on biofilms with an emphasis on chronic infections, guidelines for diagnosis and treatment of these infections, before relating this to my previous research into the area of biofilms. I will present evidence to support a view that the biofilm lifestyle dominates chronic bacterial infections, where bacterial aggregation is the default mode, and that subsequent biofilm development progresses by adaptation to nutritional and environmental conditions. I will make a series of correlations to highlight the most important aspects of biofilms from my perspective, and to determine what can be deduced from the past decades of biofilm research. … © 2013 APMIS Published by Blackwell Publishing Ltd.“

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