

Biofilms---the Key to Understanding Chronic Disease

A biofilm is an aggregate of microorganisms which adhere to each other and to a surface, often a blood vessel. The Biofilm matrix, or slime, is produced by the bacteria, fungi, or protozoans which compose the biofilm. This slime is composed of extra-cellular DNA, protein, magnesium, iron, calcium, and polysaccharides. [J. of Bacteriology (2007) 169:7945]. The US Center for Disease Control estimates that 80% of chronic diseases are caused by pathogens within Biofilms (e.g., chronic fatigue syndrome, ALS, Multiple Sclerosis, Autism, ADD/ADHD, Fibromyalgia, Lyme & tick-born disease).

Biofilms favor environments where there is a continual flow which provides nutrition to the colony and clears waste materials. Biofilm organisms exhibit a phenomenon known as “Quorum sensing”, a primitive communication system between different bacterial species within a Biofilm community. In general, bacteria within a Biofilm cannot be cultured in a standard hospital microbiology lab, therefore the vital role Biofilms play in disease has been ignored for 50 years.

Researchers at Montana State University have spent the past decade studying Biofilms and have been instrumental in drawing attention to this ubiquitous phenomenon. It is now understood that Biofilms are at the root of such common illnesses as tonsillitis, sinusitis, otitis media in children, Diabetic ulcers, chronic venous ulcers, kidney stones, and chronic cystitis [Banin, E. (2006) Applied and Environmental Microbiology, p. 2064].

Treatment of Biofilms is difficult, and usually requires a multi-faceted approach. Alternative Medicine has played a key role in providing a new perspective on how to approach Biofilm dissolution (Dr. Stephen Fry, MD Fry Labs, Scottsdale, AZ).