

## **New Approach in Dentistry with EM™**

The following article was presented by Dr. Don Izumita at The 1st International EM Medical Conference in Okinawa, Japan, November, 2001. It is printed in: Clinical and Basic Medical Research on EM-X--A Collection of Research Papers, Vol. 2., pp 77-81.

### **Basic Concept**

Ever since the dental war on germs, the America Dental Association has used TV propaganda to blame dental disease on bacteria. The truth is that it is not the bacteria but the conditions of the environment that causes the dental disease. Dental disease is due to an ecological imbalance of pathogens to good bacteria. The condition is called dysbiosis. The cause of dysbiosis is the abuse of antibacterial agents. The oral cavity is perhaps the most abused inner area of the body that uses antibacterial agents all day long. The constant onslaught of these chemicals have bred a mouthful of resistant bacteria. Resistant bacteria are mutations of the original specie that have altered their DNA to survive the germ warfare. Most of these resistant bacteria are potential pathogens that can take over the environment to cause dental disease.

### **New Concept of Fighting Dental Disease**

Stuart Levy, president elect of the America Society of Microbiology, emphasizes that the way to overcome resistant bacteria is to use susceptible bacteria to compete with the pathogens. Levy goes on to state that the resistant bacteria expend extra energy to develop genes and mechanisms within the cell to battle antibacterial agents. This process gives resistant bacteria a definite disadvantage when competing with susceptible bacteria. The susceptible bacteria will eventually win the battle for survival and eliminate the resistant pathogens. The only way that this can happen is to quit using antibacterial agents because the chemicals will kill all the susceptible bacteria. (Scientific American, March, 1998).

Science News published an article by J. Travis that showed how Maura Meade, a researcher of antibacterial agents, found that many of the chemicals being used to kill bacteria have grown resistant strains to these chemicals. From mouthwash, toothpaste, toys, textiles, soaps, cleaning agents, and other antibacterial agents, the propensity is toward development of resistant bacteria. She is afraid that soon, none of these chemicals will have any effectiveness in killing bacteria. (Science New, July 7, 2000).

Johnson of University of Oklahoma State, Klaenhammer of University of North Caroline and Muriana of University of Arkansas all have done recent research

on using beneficial bacteria to fight potential pathogens in food. The research stems around the dangers of using toxic chemicals to treat

food. These researchers have found that bacteria produce sticky proteins that block the electric flow of protons into the cell of bacteria. This process results in tiny pores that leak protons out of the inner cell. The bacteria try to patch up the leaks and eventually expend all the inner ATP energy in trying to replace the lost protons. The bacteria has no energy left to replicate and dies. These proteins are called Bacteriocins and are produced by fermentation bacteria.

John Lindquist of the University of Wisconsin Department of Bacteriology found that in food there are spores of bacteria. The spores are activated when the bacteria become stressed by temperature and pH. He conducted tests with the students in his class to determine how the pH influences different kinds of bacteria. He found that by lowering the pH during the fermentation process, bacteria disappear from the environment. His experiments showed that salt initiates stress on bacteria so that they begin to grow. As a mild alkaline to low acid environment, enteric bacteria dominate the environment. Enteric bacteria are the gram negative rods that make up many of the food pathogens. In a low acid to moderate acid environment, the enteric bacteria disappear and the gram positive cocci dominate the environment. These cocci are the cause of mucous membrane destruction and tooth decay. As the pH drops, the cocci disappear and the lactic acid bacteria dominate along with yeasts and molds. The lactobacillus are able to control the yeasts and molds from proliferating by converting the sugars to lactic acid. During the fermentation process, Lindquist found that other bacteria survived the whole process. He concluded that these bacteria depended on the fermentation process to survive and lived symbiotically with the fermentation bacteria. (University of Wisconsin Department of Bacteriology. Bact/Food Sci 324).

Olavi Kajander, a biochemist from a university in Finland, found that calcium deposits in humans were directly related to protein particles that he called Nanobacteria sanguineum. The particles contain genetic properties that can divide and replicate. Nanobacteria have the unique property of attracting calcium to its surface. This attraction can only take place in a high alkaline environment. Kajander was able to grow tumor- sized plaque in a medium that had a pH of 7.6. Kajander found that calcium carbonate could not form if the pH is under 7.4. Using the conclusions of Kajander, calcium deposits in the body can not form in an acidic environment. It can only form in an alkaline environment that antibacterial agents create in the body. (Proceedings of the National Academy of Science, USA. Vol. 14, July 1995).

Kajander used protein particles from blood to culture plaque. John Cisar, a

dentist from the National Institute of Health, used protein particles from saliva. Cisar was the critic of Kajander, and in his effort to disprove Nanobacteria, proved that some live organic particle in saliva can form plaggu. He also proved that plaque can form only in an alkaline

environment. (Procedings of the National Academy of Science. Vol. 21, 1997).

A dentist from McGill University of Canada was part of a team that uses proteins to bind calcium and stop calcium formation. The group was funded by an Australian entrepreneur. The dentist agres that calcium formation must occur a pH above 7. The research stemmed around the blood inhibitor osteopontin. Osteopontin prevents calcium formation by lowering the pH of the protein extracellular matrix.

These researchers show that antibacterial agents that are mostly alkaline that raise the pH are initiators of dental disease from resistant bacteria. Assuming that daily use of antibacterail toothpaste, antiseptic mouthwash, breath freshener, hydrogen peroxide, salts, dental materials, dental products, and even tap water, all make the oral cavity a prime environment for resistant bacteria to cause dental disease.

Treatment To Prevent Resistant Bacteria Dental Disease Treamtmnt of this kind of dental disease can only be done by using probiotics. Probiotics compete against resistant bacteria.

### **A. Outnumbering the pathogens**

Probiotics used in high concentrations will slant the population toward beneficial bacteria. The beneficial bateria starve the resistant pathogens so that they can not grow. Introduce susceptible bacteria to compete with the pathogens and the susceptible bacteria will eventually eliminate the resistant pathogens.

### **B. Direct Competition**

One on one combat by Probiotics is the use of enzymes to inhibit the growth of pathogens. Bacteriocins and other antibiotic enzymes will directly inhibit growth of specific pathogenic bacteria.

### **C. Biodegradation**

Eliminate the food resources and the pathogens have no food to turn into toxins. Probiotics have the bacteria that can digest all the food substances, carbohydrates, proteins, fats, and fiber. Dr. Metnikoff of Russia found that beneficial fermentation bacteria are able to digest spoiled putrescence food particles to compete against pathogens. The benficial bacteria turn the food into lactic acid, which is beneficial to good health. Probiotics produce the enzymes to digest and breakdown malodors in the mouth. Certain bacteria

are able to change sulfur compounds, nitrogen compounds, phosphorus compounds and any other toxic gases and turn them into useful gases needed for metabolisms.

#### **D. Lowering the pH**

Lowering the pH eliminates most of the food pathogens. Using lactic acid bacteria and certain beneficial yeast and molds eliminates the tooth decay pathogens. Lowering the pH to under 7 in saliva prevents plaque formation. Apple cider vinegar will lower the pH but it will also promote growth of bacteria. Probiotics may be the only product that lowers the pH and controls growth of resistant bacteria and other potential pathogens.

#### **E. Antioxidants**

The key factor to an alkaline environment is the propensity for oxidation. Oxidation is caused by oxidants. To prevent oxidants from oxidizing, use antioxidants. Oxidation is the grabbing of electrons from other chemical compounds. In the mouth, the grabbing of electrons forms rust with inorganic compounds. The rust is in the form of dental plaque and calculus deposits on teeth. Resistant bacteria develop in an alkaline environment because the electricity stresses them into activating existing resistant genes or creating new resistant genes. Antioxidants neutralize the electricity so that susceptible bacteria can grow and eliminate the resistant bacteria. Antioxidants breakdown mineral deposits so that they become water soluble. In the case of dental plaque, calcium carbonate is broken down into calcium bicarbonate that is water soluble. Dental stains are due to oxidation of both organic and inorganic compounds. Antioxidants are best to remove the stains and prevent the new stains from forming.

#### **F. Magnetic**

Field Changes in the polarity of the cell membrane of protein particles that form dental plaque. Bacteria has what is called a magnetic field that spins around the outer surface of the cell. In an alkaline solution, the spin is in the direction of the South pole to attract calcium to the outer surface. The spin is reversed by changing the alkaline solution to an acid solution. The spin is now in the direction of the North pole and the spin repels calcium. Probiotics can change the spin around plaque bacteria to repel calcium. (Beryl Payne, The Body Magnetic).

#### **Effective Microorganisms™ Probiotics**

The oral cavity contains over 400 different bacteria, many who may be resistant to antibacterial agents. Resistant genes have been passed among the bacteria by gene transfer. Many of the harmless bacteria have been changed into potential pathogens. Probiotics for the oral cavity needs to contain a plethora of different kinds of bacteria to compete with the many kinds of potential pathogens in the oral cavity.

Understanding science and the recent information of the last decade shows that antibacterial agents should be reduced or eliminated in the oral cavity. In their place, the best supplement is Probiotics that prevent dental disease and mouth malodor. The dental profession have not been

able to conquer dental disease because they may have been approaching the solution from the wrong aspect. Instead of curing dental disease, they may be causing the disease to grow.

Clinical tests have been done to prove that antioxidant powder does inhibit progression of periodontal disease. Use of mild acid solutions have been shown to reduce plaque. Clinical trials on older people prove that Probiotics help digest food particles in the mouth and eliminate mouth odor. Probiotics and antioxidant powder make the perfect combination to maintain good dental health. Holistic doctors have been using probiotics for over 60 years to treat dysbiosis of the gut. Now is the time to use probiotics to treat dysbiosis of the oral cavity.

The combination of different bacteria in Effective Microorganisms™ (available as PROEM•1 Probiotic) makes an ideal probiotics for the mouth. There are over 400 different species of bacteria known in the oral cavity. We must assume that many of these species are resistant bacteria because of the daily abuse of antibacterial oral hygiene products. To compete with these bacteria, the probiotics must have different kinds of bacteria. There must be bacteria to compete for all the 4 major food substances of carbohydrates, proteins, fats, and fiber. There must be bacteria to breakdown gases of sulfur, nitrogen, and phosphorus. There must be antibiotic and bacteriocin producers to keep the pathogens under control. The final ingredient must be a general to keep the different species from competing against each other. Effective Microorganisms™ is the only probiotic available in solution form that has all the necessary bacteria. Finally, the probiotic product should be an antioxidant because oxidation is the cause of stains, plaque, and malodors. The ideal product for the oral cavity is competition of good bacteria against bad bacteria, enzymes to digest all foods and odors, and antioxidant action. This makes Effective Microorganisms™ perhaps the best natural supplement for the oral cavity. The bonus is that fermentation bacteria lower the pH to where most of the known pathogens simply disappear. The time has come when antibacterial agents should be used only in the case of emergency. This will keep resistant bacteria from causing disease.