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August 20, 2000

Dear Sirs:

I read with interest Dr. John D.B. Featherstone's article "The science and practice of caries prevention" (JADA 131:887-899, 2000). Dr. Featherstone's article raises several questions of concern. The article is an excellent review of the current understanding of the pathogenicity of caries, reflects on the proven fact that most caries originates on posterior occlusal surfaces, decries the current standards of care in dentistry for caries ("drilling and filling, and placing restorations", p. 897), and appears to wistfully long for futuristic treatments ("caries prevention by laser treatment", p. 897.)

Unfortunately, the article also documents not only his inability to understand and document the full scope of the current state of the art of early intervention and preventative treatment of caries, but also documents the latent inability of the editorial review board of the JADA and the North American academic community in general to recognize and understand micro-abrasion. One concern is centered around the fact that the adjuncts to microdentistry were ignored in this article. Microabrasion is a currently existing effective treatment readily available not only for treatment of carious lesions, but also for permanent prevention of carious lesions in adult posterior dentition.

Rather than dissect the article line-by-line, I will point out that Dr. Featherstone recognized on page 888 that the genesis of the caries process begins with a biologic foothold described as a "white-spot lesion". He goes on to describe the lesion as "a small area of subsurface demineralization beneath the dental plaque. The body of the subsurface lesion may have lost as much as 50% of its original mineral content and often is covered by an 'apparent intact surface layer'." This description also accurately describes the organic plug and an associated hypocalcified occlusal surface fissure.

Rather than dissecting the article further line-by-line, it is apparent that at this point in the article, Dr. Featherstone already documented the origin of occlusal decay. In turn, this would allow the educated reader to conclude that there already exists a rather obvious solution to the problem of the early onset of decay. If "white-spot lesions" are the genesis of decay, then identify potentially damaging and untreatable "white-spot-lesions, and eliminate those "white-spot lesions".

If Dr. Featherstone and the rest of academia would merely spend some time in the laboratory

dissecting extracted teeth and looking at the fissure system of those teeth with low power magnification, they would easily recognize the early model of occlusal caries that Dr. Featherstone described on page 888. They will find fissures that developed with hypocalcified walls are associated with dentinal caries, while in the same tooth, fissures that have no hypocalcification of fissure walls will have no associated dentinal caries. These hypocalcified fissure walls and the associated organic cariogenic mass are the equivalent of "white-spot lesions" of smooth surface caries.

The vast majority of dentists can easily duplicate the experiments that allowed me to arrive at this conclusion nearly two decades ago by taking extracted posterior teeth to their laboratories. By grinding these teeth along their vertical axis with a rock wheel or on a model trimmer, the carious and non-carious fissures in individual teeth can easily be observed with low power magnification and the phenomena of hypocalcified fissures and associated dentin decay and the sound fissures with no associated dentin caries in the same teeth can be readily observed.

After recognizing the genesis of the decay process (hypomineralization), Dr. Featherstone then launches into the usual review of the literature, which can easily be summarized as methods of altering the instability of "white-spot lesions". Rather than belaboring this already overworked, extensively researched, and failure prone approach to controlling the disease process of occlusal caries, logic and common sense should allow casual observers to arrive at the conclusion that elimination of the occlusal caries process can result from identification of unsound fissures, elimination of the associated hypocalcified structures, and proper restoration of the defects.

This process is currently employed by thousands of dentists in private practice outside of the constraints of academia, and is commonly referred to as micro-air abrasion dentistry. The goal of micro-air abrasion dentistry is to identify and eliminate unsound tooth structure on the microscopic level with minimal loss of sound tooth structure, in keeping with our oath to "do no harm".

As a pragmatic realist as well as a scientist, I realize that if academia were to inconveniently recognize this simple and easy solution to the problem of preventing occlusal caries that already exists, the incredible millions of dollars of ongoing research alluded to in just this one article would suddenly be in serious jeopardy. As a realist, it is also easy to predict that the usual reaction to this simple and easy solution to the problem of adult caries will be to summarily dismiss it.

We worked out these principles of identification and restoration of early occlusal caries by a logical process of trial and elimination through the late 70's and early 1980's. While Dr. Featherstone's Dental Utopia is still a mystical vision of unknown promise somewhere over the horizon of the future, I have helped develop (and document) a now fifteen-year-old process that is virtually bullet proof. The resulting fifteen-year-old science of micro-abrasion is effective in preventing the occlusal caries that plagues the 94% of American Adults referenced in his article. To emphasize the degree of effectiveness, since 1985 I have put a lifetime professional warranty on the restorations we place in normal occlusal surfaces that erupt under our care.

I challenge anyone to document a more effective system now or later. The future is already here.