

On Being a Holistic Dentist

by Jay Harris Levy, DDS

For a number of years I practiced as a general dentist according to the generally accepted procedure-based practice model, restoring broken and decayed teeth with fillings and crowns, treating periodontal disease, performing root canal therapy and extracting teeth. Although I was confident about the quality of my dental procedures, I was concerned about the causes of tooth breakdown and became dissatisfied with the procedure-based practice model. I noticed that patterns of tooth breakage and wear were related to the way the teeth fit together. Patients with poor relationships between the biting surfaces of their upper and lower teeth often had alarmingly high rates of tooth fracture, wear and decay. Many of these patients found that it was difficult to find a comfortable place for their teeth to meet when they were chewing. These patients often complained of jaw pain, headaches and that their jaw muscles became exhausted when they chewed certain types of food. Furthermore, only a few teeth contacted when these patients did find a somewhat comfortable place to bite. It became apparent to me that tooth breakdown occurred in teeth that were subjected to concentrated biting forces.

In my search for understanding how the bite influences tooth breakdown I began to study dental occlusion (the study of jaw-tooth relationships). I attended a number of advanced clinical courses on occlusion and utilized my mechanical engineering background to begin forming a comprehensive model of the chewing system. My approach to dental practice shifted from a procedural to a systematic approach. A key element of this approach is the simulation of the patient's bite and chewing movements using anatomically mounted plaster casts of the patient's teeth. Mounted casts are used to study the interactions of the teeth in order to determine the most conservative measures available for restoring stability to the bite. When misaligned tooth-jaw relationships are corrected, patients are able to bite evenly on all of their teeth and able to slide their teeth effortlessly into different biting positions. An environment is then created that allows the teeth to last longer and the patient to be more comfortable during chewing.

Over the years, as I stabilized the bites of more and more patients, I turned to the scientific literature for help in understanding why occlusal therapy had such a profound influence on patient comfort and on control of jaw movements. The literature fell short of adequately explaining the underlying mechanisms of occlusion and revealed a gap between what scientists and dentists knew about teeth. I realized that the practice of dentistry could be greatly improved if basic scientific knowledge and clinical practice were more unified. This realization led me to sell my dental practice in New York City and move to Portland where I joined the faculty of the dental school at OHSU. At OHSU, working as a post-doctoral fellow in neurophysiology, a dental researcher and a clinical instructor of prosthetic dentistry, I developed a deeper understanding of the mechanisms that underlay the chewing system, which I incorporate in my clinical practice.

A holistic approach to dentistry views the mouth and jaws as part of a complete system that is much greater than the sum of its parts. Unfortunately, the practice of dentistry is often segregated into parts (e.g. fillings, crowns, root canals). I no longer think of teeth as isolated structures that may need to be repaired, but as vital components in a complex neural network that sustains our lives. My research informed me about how the teeth and the brain communicate with the muscles that are used to chew and swallow food, moving our jaws and heads in complex rhythms synchronized to the type of food and to the alignment of the teeth and jaws.

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The first seventeen years of dental practice taught me that quality tooth repair, good hygiene, nutrition counseling and the restoration of proper tooth-jaw alignments lead to patient comfort and enduring teeth. My research at OHSU explained why. One of the most important concepts to emerge from my research is that teeth are "Tactile Sensory Organs". Ironically, my mother first introduced this concept to me when I was a child. She taught me a way to determine the difference between genuine and imitation pearls. Genuine pearls feel gritty to the teeth and smooth to the fingertips while imitation pearls are made of plastic and feel smooth to both teeth and fingertips. Teeth are finely tuned sensory bulbs that enable us to feel textures, vibrations and forces. They inform our brains about what we are chewing and our brains figure out what to do next. We bite only as hard as the sensory system of our teeth and the condition of our central nervous system allows us to. How hard we bite determines if our teeth will crack and, to an extent, how long our teeth will last.

Diet also has a significant effect on the longevity of teeth. An old orthodontist friend once reminded me that as humans the first priority in life is "to breathe" and the second priority is "to eat". However, what we eat determines the health and the ecology of our mouths and can influence how we breathe. Tooth decay is a sign of an imbalanced oral ecosystem. The modern "refined food" diet allows billions of the acid producing germs that cause tooth decay to flourish in the mouth. A more traditional "whole foods" diet provides very little nourishment for germs in the mouth to flourish, while providing a great deal of nourishment for the body. Many people suffer respiratory problems from what they eat. Food allergies and environmental irritants can block nasal passages and cause mouth-breathing habits. Mouth-breathing habits in childhood often lead to improper tooth-jaw alignments (i.e. malocclusions), which can cause high rates of tooth fracture, wear, decay and periodontal breakdown.

Holistic dentistry is about promoting a state of health in the chewing system. It is about meeting patients at various points in the timelines of their lives and thoroughly evaluating the condition of their mouths, overall health and nutritional habits. It is about trying to figure out how a patient's teeth and chewing system evolved into the current state, and extrapolating the patient's dental future with and without intervention by the dentist. It is about customizing preventive and restorative dentistry to suit the conditions of the patient as well as customizing dietary and cleaning habits. Holistic dentistry is about helping patients to maximize the longevity and health of their chewing systems.

The human chewing system evolved to sustain life. I wish you health and long life!

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