

Endodontic Microscopes: A New Window to the Pulp Chamber

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Received: June 07, 2017; **Published:** June 13, 2017

Long before “windows” became the popular way to visit new worlds with computers. And ancient explorers used the telescope as a window to new worlds in the heavens. Today; telescopes also are at the forefront of a revolutionary exploration, opening new windows for dentists to view their clinical world.

The art of dentistry is based on precision. The human naked eye is capable of distinguishing fine details, but is no match for what can be accomplished when an image is sharpened and enlarged.

“You can do well what you see, if you see well what you do”, dates back to the fifteenth century when magnification was first used. Certain dental procedures were performed with the aid of magnification in the late 1800 and the first microscope used in clinical procedures was introduced by Apotheker in 1981. The use of magnification in clinical and technical dentistry has become the standard since 1990, when its use became wide spread.

The microscopes and other forms of magnification fill that need, especially for accomplishing endodontic procedures. The resolving power of unaided human eye is 0.2 mm. This means that the eye can determine a 0.2 mm separation between two points or lines. Hence marginal discrepancies 0.2 mm or more are not acceptable. From the perspectives of research, material evaluation and technical achievement, the marginal discrepancies should be 0.05 mm or less.

Visual acuity is improved with optical magnification and an appropriate increase in illumination. Correct lighting is important to maintain three-dimensional perception. An appreciation for magnification is realized when elements are seen that have not been seen before. Low power magnification (2x) enlarges what is seen with the unaided eye and provides a slight enhancement of that not seen previously. High power magnification (12 to 20x) brings to view what was not previously visible.

The more one is able to see, the more one can understand the limitations of materials and techniques making problem solving possible. The introduction and wide spread use of the operating microscope together with the power of ultrasonic’s and instruments for micro endodontics have brought giant strides in the field of endodontics.

Volume 11 Issue 4 June 2017

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