The surgical **Microscope of Implant Dentistry** Improved Clarity, Improved Precision

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Whilst the value of the dental microscope is widely acknowledged across the treatment spectrum, its impact has been most keenly felt in the field of endodontics.

Implant dentistry is one particular application where the introduction of the microscope has brought significant benefits to every phase of the treatment protocol. Implant treatment may take place over several weeks and involve delicate and complex surgery where absolute clarity of view is vital to achieve the optimum outcome with minimal peripheral tissue damage or invasion. Studies have demonstrated that the accuracy of such procedures is almost always improved when surgeons enlist the aid of a microscope, a clear indication that employing microsurgical techniques in implantology offers advantages over more traditional methods. The surgeon is able to place the implant through a relatively minute incision in the gingiva, thus minimising tissue trauma and significantly reducing the pain experienced by the patient; healing and osseointegration are both expedited, and overall aesthetic results enhanced.

A high specification, high magnification microscope is especially valuable in more challenging cases involving, for example, sinus elevations or the need to place implants proximal to other sensitive anatomic structures. The current generation of advanced microscopes allows unimpeded stereoscopic vision whilst dedicated illumination enables the delivery of high-contrast, true-colour images of even the most inaccessible areas to be viewed with clarity and in comfort. These state-of-the-art microscopes feature lenses of supreme precision which incorporate apochromatic technology to eliminate chromatic aberration, and filters which not only prevent premature curing but can enhance the visibility of specific tissue types.

A modern dental microscope offers more than simply a hugely magnified image of the treatment site. The combination of magnification with intense, shadowless, panoramic illumination from an integrated co-axial light source brings into view features previously imperceptible, even through the use of dental loupes. Typical benefits include enabling more accurate drilling of the lateral socket wall to achieve greater stability for the implant, leading in turn to more accurate alignment and the promotion of optimal function and aesthetic appeal.
With space at a premium in many surgeries, microscopes are designed to be compact with many featuring internal cabling to minimise hazards and maximise convenience. Integrated or attachable cameras represent a practical pairing of advanced technologies, where magnified video footage or images can both assist the clinician and also involve the patient in explanations of diagnosis and treatment progress. For many patients implants are an elective procedure, and greater understanding invariably increases compliance and take up rates. Images can also be used in documenting procedures for future reference, or edited for teaching purposes or presentations.

Back problems caused by working for sustained periods in a crouched or crooked posture are a recognised occupational hazard for dental professionals, and a single implant appointment can mean up to two hours of sitting in the same position. Using a dental microscope with a 1800 tiltable tube allows a break in the pattern, as the clinician is obliged to assume a more upright posture and so relieve accumulated stress and fatigue.

Quality, custom designed dental microscopes are easy to control and react intuitively to minimise procedural disruption. Complex surgery demands intense concentration, and the more sophisticated microscopes offer versatile mobility and superb operational convenience through the incorporation of a MORAs (Mechanical Optical Rotating Assembly) interface. MORA enables the practitioner to reposition the microscope with one hand, whilst still remaining comfortable, regardless of any change in the viewing angle. Motorised adjustments of the focal length and a range of focal distances allow practitioners to work at their own ideal working distance and with magnification options such as a five-step magnification changer a detailed, close-up view can easily be alternated with a complete site overview.

The acquisition of a surgical microscope with its provision of vastly enhanced visual acuity instantly increases the practitioner’s range of treatment options, and many dentists have found that microscopic examination methods have transformed both the accuracy of their diagnoses and their working methodology. It’s also true that in a competitive environment, and with a technologically aware public, advanced instruments and equipment are vital to ensure a practice’s continuing success. However, the purchase of a microscope, with all the potential it offers to exploit the latest treatment techniques, is usually a one off occasion, and both the unit itself and the supplier should be chosen with care.

Carl Zeiss is a name associated worldwide with the finest quality optical equipment and Nuview, Carl Zeiss’ exclusive UK distributor, offers an impressive portfolio of dental microscopes as well as training and workshops to introduce practitioners to their immense possibilities.

Progressive practitioners in every dental discipline owe it to themselves, their practices and their patients to investigate the benefits of investing in a quality dental microscope.

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