Technical innovation is a driving force in a fast-paced discipline like dental implantology. That’s why Gerard M. Scortecchi, DDS, PhD, sought an alternative to root-form or blade implants, which were — and still are — the focus of most manufacturers’ efforts. The result of his efforts — the Diskimplant system — offers a lateral, rather than vertical, approach in the design and insertion of an intraosseous implant. The success of his innovative design has been well-documented and accepted by a significant segment of dentists.

Developed 13 years ago in Europe, the Diskimplant was first used to treat partial edentulism and replace limited-unit fixed bridges. Initial successes in France, Germany, Belgium, Switzerland, Italy and Spain led to use of the system for more complex cases such as full-arch reconstructions.

In addition to inventing the Diskimplant system, Scortecchi now has a private practice limited to implant surgery and implant prosthodontics in Nice, France. He is co-director of the implant prosthodontics program at the University of Marseilles Dental School, France, and a visiting professor at New York University.

New York. He is a legal expert on the subject of odonto-stomatolody and has conducted research on tissue integration of pure titanium in odonto-stomatolody at the University of Marseilles Experimental Surgery Center and Boston University Goldman School of Graduate Dentistry.
According to Scorteci, the Diskimplant system is unique in the following ways:

- The implant is inserted using a lateral osteotomy as opposed to the axial drilling procedures used for cylindrical root-form implants and blades. The result of lateral insertion is immediate tricortical support (crestal, buccal and lingual plates).

- The technique uses a high-speed turbine with lateral cooling at all points of the osteotomy, which eliminates the risk of thermal injury. The microcanals along the cutter shaft ensure constant irrigation of the bone site by the spray. The high-speed turbine has virtually no torque, thus there is no heat augmentation.

Surgery requires a minimum of instrumentation—a high-speed turbine and the appropriate osteotome for the future implant, Scorteci adds. Once the soft tissue incision has been made, a full-thickness flap is elevated. Only pure titanium instruments are used during the drilling phase to avoid contaminating the site with other metal particles that might compromise osseointegration. A manual or automatic mallet with a titanium tip is then used to push the Diskimplant into the bone site. No specific instruments are required for the prosthetic phase, except a series of hex screwdrivers used to secure the abutment components.

Diskimplants are available in a wide range of sizes covering the variety of situations encountered in clinical practice. Single-disk models are available in base diameters of 6mm, 7mm, 8mm, 9mm and 10mm and shaft heights of 5mm to 9.5mm. Double-disk models, particularly indicated for thin, narrow ridges in the maxilla, are available in diameters of 5mm, 7mm, 8mm and 9mm. Flat, rounded crests are best managed with large base diameters and short shafts to achieve optimum support in the cortical bone plates.

**A therapeutic choice**

The wide range of models and the nature of the surgical procedure (lateral insertion under constant visual control) permit use of Diskimplants in cases where no other endosseous implant could be inserted unless combined with another procedure, such as a bone graft or nerve displacement.

For example, root-form implants have certain limitations when the available bone height is less than 7mm or 8mm. Because the Diskimplant system takes advantage of the...
width of bone and achieves tricortical support, it is suitable for cases with a bone height between 4mm and 8mm. Thus, many patients with severe bone resorption can benefit from this therapeutic alternative. When less than 4mm in bone height is available, the practitioner has several options, including the following:

- Decide not to use an implant.
- Perform a graft or sinus lift in the maxilla or nerve displacement in the mandible.

- Use a subperiosteal implant if there is still 3mm to 4mm of adequate cortical support available.

"The Diskimplant system is especially appropriate for treating elderly patients, because the procedure is fast and atraumatic," explains Scortecchi. "Furthermore, the surgical phase can be controlled closely. In particular, the surgical procedure eliminates the risks of nerve damage, an important consideration in terms of patient security and medico-legal implications of the operation."

**A team effort**

Because development of the prosthetic system involved teamwork among dentists, surgeons and dental laboratory technicians, Scortecchi notes that the components are designed to handle the complete range of clinical situations. As a rule, all abutments connected directly to an implant body are detachable, to allow replacement of worn components, if necessary, after several years. Abutments are never cemented to the implant body but are fastened by screws. To avoid loosening of the screws, all components have an internal antirotation system.

Diskimplants can also be used in conjunction with clip-bars when the patient requires a removable prosthesis.

A special series of Diskimplants with a hexagonal abutment is available for single-tooth replacement. The implant (available in both single-disk and double-disk models) and prosthetic components are designed to prevent rotation of the prosthetic tooth.

The Diskimplant is a two-stage insertion and recovery system. After insertion, the flap is sutured, and the tissues are allowed to heal for several months (usually three to six months in the mandible and six to eight months in the maxilla). ▲