

Specialists quarrel over 'single file endo'

Reciprocating motion a promising method for canal preparation



■ Endodontic procedures that only require one rotary instrument are causing controversy amongst specialists worldwide. Endodontists are actively discussing the pros and cons of the new procedure in Internet forums. So-called single reciprocating file systems have been launched by several dental manufacturers over the last few months.

Originally developed by Canadian and Lebanese scientists, the single file endo concept is claimed to require only one reciprocating file and no glide path or initial instrumentation for the majority of root canals. According to the manufacturers, the technique reduces working time and lowers cross-contamination amongst patients, a common problem associated with the use of multiple files.

However, specialists are not so sure. "This current trend in file design and philosophy is the equivalent of doing brain surgery with a hammer and chisel. Anyone, who

truly believes that Hess-type anatomy can be dealt with by using one rotary file is delusional," a specialist in an US-based endo forum observed.

"The technique requires a new motor, which will turn off many dentists who are already working with conventional rotary NiTi instruments," a German Internet blogger commented. "The bottom line is that the system has to offer considerable advantages or it will be rejected by the market despite its clinical potential."

In a recent *Dental Economics* article, Manhattan-based dentist and endo specialist Dr Barry Musikant said that the technique could create a new standard for instrument use in endodontics. "Common sense says that single usage is a rationalisation to compensate for the weaknesses of rotary NiTi."

Most single reciprocating file systems are already available in major markets. ◀

Enhanced treatment concepts in endodontics on display

IDS will present new techniques and instruments for long-lasting tooth retention

■ The upcoming International Dental Show will be a comprehensive platform for dentists and dental technicians to find out all the latest developments in tooth retention and how to implement complex endodontic treatment systems into dental surgery. Endodontic measures, which due to demographic shifts are becoming increasingly important, provide a reliable base for long-term and lasting tooth retention. Latest clinical evidence has confirmed survival rates of endodontic treated tooth of up to 85 per cent.

In recent years, the field has introduced new methods of conservation therapy including manual or mechanised root canal preparation, efficient rinsing methods during disinfection and the use of modern instruments and materials for obturation. With the help of advanced root pin systems, nowadays even the treatment of front teeth with fractured crowns and roots has become possible. In case a root canal revision should be the only clinical option, endodontic experts have a range of minimally invasive microsurgical concepts for even the treatment of complex endo-periodontal lesions to their disposal.

"The impressive scientific and technological progress in the field of endodontics has improved the odds of long-term tooth retention tremendously and puts this speciality at the centre of a prophylactic-conservationist approach in dentistry," says Dr Martin Rickert, Chairman of the Board of the Association of German Dental Manufacturers (VDDI).

The long years of intense collaboration between a large number of endodontics specialists and the industry

have resulted in improved instrument and new material that improved diagnosis and, above all, improved treatment of root canal lesions. Modern imaging techniques, for example, allow for a more precise visualisation of the root canal and thus enable both



• Surgical microscopes allow minimally invasive endodontic treatment. (DTI/Photo courtesy of Koelnmesse, Germany)

endometry up to the apex and also the exact determination of the file position during preparation. Digital X-rays and digital volumetric tomography are also becoming increasingly important in endodontics. High-resolution intraoral cameras, for example, can be used not only for therapeutic purposes but also for online documentation.

Another important trend is the increased use of mechanised root canal preparation. Computer-designed file geometries with optimised conicities and cutting edges have particularly improve safety and efficiency. Advanced materials such as nickel-titanium or titanium-niobium alloys, have

significantly increased the durability of rotating preparation and revision files that allows evenly conical preparation even in the case of severely curved root canals. High-performance, electronically controlled drive units with torque control are helping to eliminate fracturing when using mechanised files.

Technological process has also been made in other areas of endodontics. The working length is determined either by means of X-rays or with the help of modern electromagnetic measuring methods, with the latter causing no additional exposure to radiation. Effective chemical preparations, the action of which can be enhanced via ultrasound-supported or hydrodynamic methods, are used for root canal irrigation which frequently decides the success of the procedure. Modern sealer adhesives and cements based on composites are available for bacteria-tight obturation. Classic methods, such as gutta percha techniques have also seen significant progress.

New equipment systems for warm vertical condensation now ensure better adaptation of the thermally plasticized gutta percha to the canal walls.

Besides routine tasks that can also be performed by a general dentist, endodontics offers a challenging working field for specialists that includes complex revision work, root end resections and the restoration of teeth with fractured crowns and roots. To accomplish this task, experts are able to use loupe systems or surgical microscopes that permit minimally invasive microsurgical endodontic surgery. ◀

(Source: Koelnmesse/Edited by Daniel Zimmermann, today international)

"Preserving natural tooth substance remains a priority"

By Dr Christian Gernhardt, University of Halle/Saale, Germany

■ With IDS only a few weeks ahead, it is certainly a perfect opportunity to get acquainted with new trends and developments in the field of endodontics. Although the basic goals of endodontic treatment including the chemomechanical elimination of microorganisms and the following apical and coronal sealing of the



• Dr Christian Gernhardt

root canal system have not changed much over the years, new and advanced products are certainly going to be presented in Cologne.

An increasing number of our dental colleagues are currently jumping

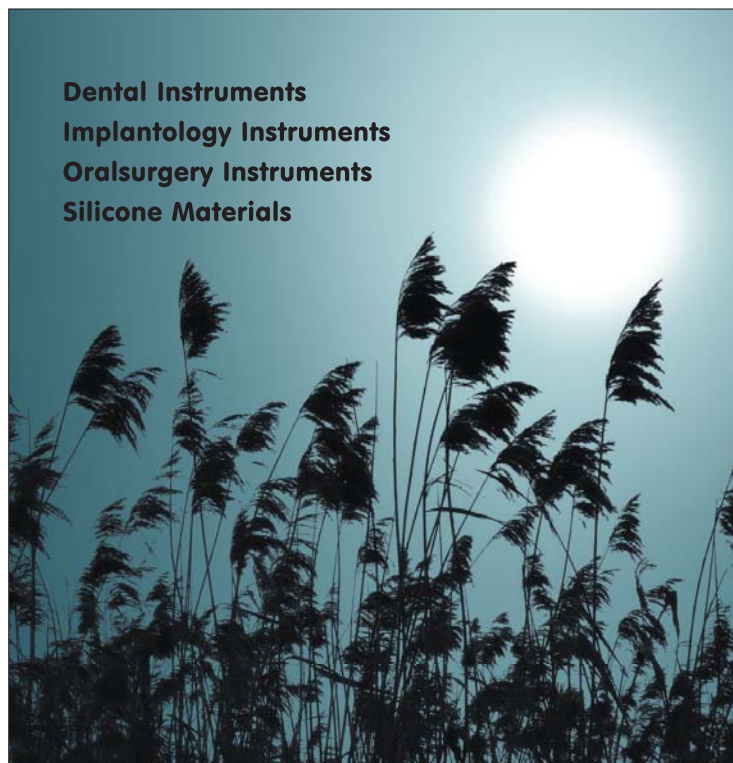
on the endo bandwagon through congresses, continuing education and master programmes and wanting to educate themselves in the field. Looking also at the numerous articles that have been published on endodontic issues in the national and international trade press, these development and offerings will benefit our patients in the long-run. Despite the rapid developments in the field of implantology, preserving natural tooth substance through high-quality endodontic therapies remains a priority as these minimal-invasive procedures can save patients from extensive and

risky treatment with tooth replacements for the time being.

It is not surprising that the industry has further extended its offerings as a result from this increasing interest in endodontics. At this point, however, it seems an impossible task to mention all new products that are going to be released during IDS. Therefore, I only want to focus on a few innovations in the field of root canal preparation.

It has been a long-term goal for endodontists to make mechanical preparation with NiTi instruments not only easier, faster and more economical but, up and foremost, safer. At IDS, several systems will be launched to

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Orthodontics in practice and laboratories

Field increasingly benefits from digitalization and enhanced diagnostics

■ During their visit to IDS 2011, general dentists, dental technicians and orthodontic specialists will be presented with a unique opportunity to obtain a comprehensive overview of the latest concepts in orthodontics and its related disciplines such as implantology, periodontology, radiology and material science. Orthodontic care providers as well as patients do benefit from the increasing miniaturization of elements, "invisible" lingual brackets and wires, intelligent Ligier methods as well as new body-friendly materials.

The industry is also offering workplaces especially for the requirements of orthodontic specialists. These units have been consistently designed according to ergonomic principles and allow better access to the patient—an advantage particularly in the treatment of children and young people.

Modern orthodontic treatment processes making effective contributions to the correct development of the masticatory system. Nowadays, general practitioners, orthodontics specialists and dental technicians operating in the dental prosthesis area can be more involved more than ever in the orthodontics field. Digital advancements have entered the field in form of CAD/CAM-aided aligner concepts based on modern X-ray processes, which are able to develop virtual 3-D model images and treatment plans with the help of computers. As a result, dental mal-alignment can be often corrected faster and with less inconvenience for the patient.

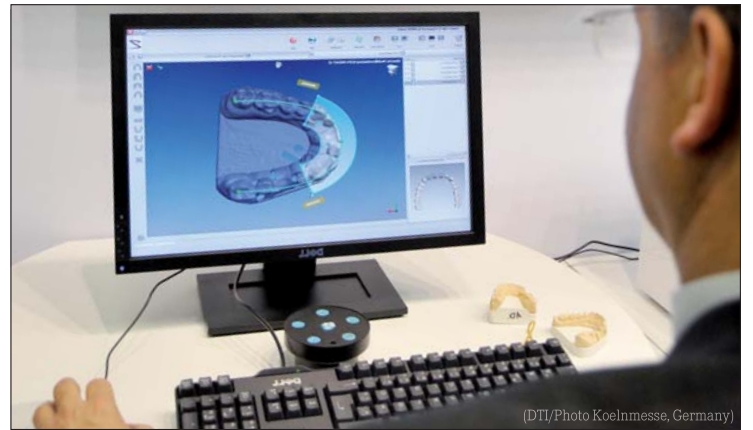
Improved diagnostic methods including digital imaging with its processing and archiving possibilities are becoming increasingly affordable also for smaller dental surgeries. Functional diagnostics or cephalometric analyses are also benefiting from technological achievements. As a result, remote lateral X-ray imaging can also be performed digitally today. The digital transfer of data within the surgery or to laboratories has now become standard due to good dental work organisation. In addition, intra-oral cameras support the patient's pre-treatment discussion with the dentist.

"The scientific and technological advances offer orthodontics and its related disciplines outstanding therapeutic opportunities," explains Dr Martin Rickert, CEO, Association of German Dental Manufacturers (VDDI-Verband der Deutschen Dental-Industrie).

"Similar to other fields in dentistry, digital processes are increas-

ingly finding their way into daily practice or into laboratories where they provide new opportunities for orthodontics starting from patient examinations, the planning and design of therapeutic measures to digital networking," he added. ◀◀

(Source Koelnmesse/ Edited by Daniel Zimmermann, today international)



(DTI/Photo Koelnmesse, Germany)

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the market that are said to make it possible to prepare even complex root canals with only one completely overhauled single file design. The way instruments move as well as their structure has fundamentally changed. Reciprocating and oscillating motion has been replacing the traditional rotational motion that has been the standard for many years. First user reports about the new concept are showing promising results and are currently discussed lively inside endodontic circles.

To determine whether and to what extent these development will be an important and revolutionary step in endodontics depends on independent in-vitro and, more importantly, in-vitro studies. One thing is for certain, suspense continues to dominate our field.

All the best to you and keep open-minded. ◀◀

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