

## **DAVID SONNTAG**



### **CV**

David Sonntag graduated from the University Marburg, Germany in 1998, where he also received his doctoral degree in 2001 and his PhD in 2008. He is certified endodontist by the German Endodontic Society since 2005. Sonntag is still involved in undergraduate teaching and works part time in a private dental office limited to Endodontic since 2008. He has authored several scientific original and review articles in national and international journals and has been awarded by the Journal of Endodontics with the best article in clinical research in 2017. He lectures extensively nationally and internationally. Since 2010 he serves as a program director of the postgraduate endodontic program and as a CEO of Duesseldorf Dental Academy GmbH at the University Duesseldorf where he was appointed as titular professor in 2018. His main research interest lies in canal enlargement with NiTi instruments.

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### **PRESENT AND FUTURE OF NiTi INSTRUMENTS**

Which system of nickel-titanium instruments would you like? Undoubtedly a system that can be used very simply with only one instrument in every kind of root canal without creating steps or transportations, which always cuts effectively and never fractures. Exactly this instrument is being developed - theoretically. With this listing of properties, it is obvious that such an instrument never will exist.

In this lecture, the development of nickel titanium instruments since the first presentation in 1986 by Walia is traced in order to understand the current development direction. Over the last 30 years, the number of instruments has been reduced significantly – up to systems with only one instrument. The geometry has been developed from conservative three-edged files with radial lands to more efficient

instruments with only one or two cutting edges. Altered alloys and surface treatments have increased the flexibility and reduced the memory effect to such an extent that even pre-bending of instruments has become possible. Reciprocating movement has proven to be safer with regard to transportation and fracture resistance compared to rotary treatment. Nevertheless, rotational systems are launched on the market until today – for sensible reasons.

For future developments, various aspects can already be anticipated: there will be no further reduction of instruments, neither a recourse to old geometries with large file cross-section or lateral support zones. NiTi rotary or reciprocating systems will have to be measured not only in the user-friendliness, but also in the avoidance of microcracking and substance-saving preparation. For this purpose, various possibilities for further development will be presented.