



From long fibres to nano fibres: evolution of the use of fibres in dentistry



Prof. Pekka Vallittu has earned his degrees in Dental Technology in 1988, Doctor of Dental Surgery and Doctor of Philosophy in 1994, received Adjunct Professorship in 1995 and specialized in prosthodontics and stomatognathic physiology in 2000. Presently, he is a Full Professorship and Chair of Biomaterials Science in the Faculty of Medicine, University of Turku (Finland) and works as Dean of the Institute of Dentistry at the University of Turku and as the Director of Turku Clinical Biomaterials Centre. He holds Honorary Professorship at the University of Hong Kong, Pokfulam and Visiting Professorship at the King Saud University in Riyadh (Saudi Arabia). His predominating research activity on fibre-reinforced composites has lasted over 30 years since 1980's. The first clinical applications of fibre-reinforced composites were found in clinical dentistry and thereafter in combination with bioactive component in bone surgical applications as non-metallic bioactive implants. He has over 540 ISI Web of Science Index original publications. He has established two companies for getting newly developed composite materials clinical use in dentistry and bone surgery.

Interview with **Prof. Pekka Vallittu**, Finland

Could you please shortly introduce yourself?

Professionally, I started as a dental technician and later became a dentist as well. During my undergraduate course, from 1988, I already started with research on the use of several types of fibres to reinforce dentures. In 1994, I completed my doctoral dissertation on this topic. Shortly thereafter, I stayed for almost two years at the Nordic Institute of Dental Materials where I had the chance to do research with Dr I. E. Ruyter, one of the most renowned experts in polymer chemistry for dental applications. Here, I gained deep knowledge on that topic. Then, I returned to the University of Turku and I was one of the founders of Stick Tech (spin-off of the University of Turku, red.) in 1997. However, I made the personal decision to stay at the university rather than

proceeding in the company, where I got governmental funding to continue research on fibre-reinforced composite. Through these many years of research, we had the chance to build a substantial amount of evidence and expertise in fibre-reinforced composites. In 2006 I became Professor and Chair of the Department of Biomaterials Science and in 2009, director of the Turku Clinical Biomaterials Centre (TCBC). I've been the Dean of the Institute of Dentistry of the University of Turku from 2004 to 2012 and after a short break, returned to that position in 2018.

In your opinion, what are the main advantages of fibres in dentistry?

Fibres are the only way to make large direct restorations with good mechanical properties and durability. Other durable strong materials, such



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