

# Why I would consider a career in periodontology

by

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"Smile!" \*click\* My daughter fires off a big smile and she looks so proud of her first lost tooth and the unicorn necklace the tooth fairy brought last night. But let's take a different picture: a grown up with her first lost permanent tooth, extracted due to periodontitis. The whole picture changes, the proud smile is gone, and the unicorn is exchanged for a cost sheet from the dentist. What if I could prevent that tooth from being lost in the first place? What if I could prevent that smile and pride being lost? That is why I would consider a career in periodontology.

Periodontal disease is one of the major oral health issues worldwide. According to statistics from the World Health Organization presented by Petersen and Ogawa (2012) up to 20% of the European middle-aged population and 40% of 65-74-year olds suffer from severe periodontal disease. Furthermore, the authors predict that the prevalence of periodontal disease will rise due to higher frequencies of risk factors like diabetes. Hence there is a large group of patients in need of periodontal care and a growing need for dental practitioners within the field of periodontology. That is why I would consider a career in periodontology.

Periodontal disease affects quality of life, and the more severe the disease the greater the impact on life quality (Buset et al. 2016; Ferreira et al. 2017). Not only the functional aspects, like biting and chewing, are impaired but also the psychosocial wellbeing is negatively affected (Buset et al. 2016; Ferreira et al. 2017; Petersen & Ogawa 2012). What if my work as a dentist could make a difference? What if I could help the patients I meet to improve their quality of life? That is why I would consider a career in periodontology.

Ultimately periodontitis may lead to tooth loss, which also affects oral health-related quality of life for the patient (Gerritsen et al. 2010). For a person with a middle income, getting replacement therapy for a lost tooth would be expensive but affordable. But individuals with a low income are less likely to afford replacement therapy. Additionally, looking at the socioeconomic factors, low income and low educational level are both associated with periodontal disease (Borrell & Crawford, 2012). Unfair, right? I want to change that. That is why I would consider a career in periodontology.

I was born curious. I want to find out how things work and why - in particular on a cellular and molecular level. In other words, I'm into research. Thanks to a scholarship from Umeå University I have had the opportunity to work in a research lab during three summers in parallel with my studies. That is how I sought contact with a successful and productive research group in molecular periodontology led by Pernilla Lundberg, specialist in periodontology. I was accepted into this open-hearted group – and I love it! It is intriguing to dig deeper into these complex processes of periodontitis.

The current main focus of the group's research is chemokines' effect in inflammatory driven bone loss. This group was the first to show that chemokine CCL11 is produced by osteoblasts and promotes osteoclast migration and bone resorption (Kindstedt et al. 2017) and that CCL11-levels are elevated in patients with periodontitis (Boström et al. 2015). This is a feature shared with rheumatoid arthritis (RA), another chronic disease characterised by inflammatory driven bone loss (Kokkonen et al. 2010). Research links these two conditions, with a higher incidence of periodontitis among patients with RA (de Smit et al. 2015). Current research suggests that radiologically identified marginal bone loss precedes signs of RA (Kindstedt et al. 2017).

There is still much to be elucidated concerning the mechanisms of periodontal disease. Dental biofilm is an essential risk factor for gingivitis and periodontitis, but studies have shown that dental plaque is not sufficient to explain why some individuals experience attachment loss, and some do not (Baelum et al. 1986, 1988; Löe et al. 1986). Why are some people more susceptible for periodontitis? What connects periodontitis and RA? What are the inflammatory mechanisms that drive periodontal attachment loss – and can it be stopped? I want to find out. That is why I would consider a career in periodontology.

At this moment, my daughter's first permanent tooth is erupting. But in fact, we don't even know how the bone over the erupting tooth is remodelled in such a refined and well-balanced way. That calls for more research in bone remodelling – both the natural, balanced process and the unbalanced inflammatory bone metabolism. Let's find out!

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