

Dr. Mehdi Rahimi (Principal Endodontist)
BSc, BDS Distinction (NZ)
DClinDent (Melb), FICD, FPFA, MRACDS
Adjunct Associate Professor (CSU)
President of the Australian Society of Endodontology (ASE NSW)
Guest Lecturer (Melb & Syd)
ADA NSW Councillor



"I always approached research with a "Can do" attitude and believed that "Persistence is the key to success." Although you can fail, you can learn a lot from that failure, which motivated me to go forward."

Dr. Mehdi Rahimi

Biography

Dr. Rahimi is an Adjunct Associate Professor at Charles Sturt University (Orange). Mehdi graduated with a Bachelor in Dental Surgery with distinction from the University of Otago (New Zealand) in 2002 and received his Doctorate of Clinical Dentistry (Endo) degree from the University of Melbourne in 2008. He has been actively involved in Endodontic teaching at various continued education levels, both nationally and internationally. Mehdi is a guest lecturer at Sydney and Melbourne Universities, and a CPD mentor and Councillor for the Australian Dental Association NSW.

Mehdi has obtained a number of publications in the field of forensic dentistry and Endodontics (resin based obturation material and fractured instruments). In 2000 he was awarded the Sir Allan Wilkinson award for the most worthwhile research in Medicine and Dentistry from the University of Otago, in 2001 he was awarded the International Association for Dental Research Young Researchers Award and in 2002, Mehdi received the Pierre Fauchard Academy Award of Merit.

Mehdi is the current President of the Australian Society of Endodontology (NSW branch), the immediate past-president of the Australian Asian Association of Dentists, a fellow of the International College of Dentists (FICD), a fellow of the Pierre Fauchard Academy, a member of the Australian Dental Association (NSW) Education & Research Committee, a member of the Royal Australian College of Dental Surgeons in Endodontics, and a member of the Australian and New Zealand Academy of Endodontists.

You have published some articles on forensic dentistry. Tell us more about that and what you think all dentists should know.

"The most important thing is to inform the patient and deliver the news in a non-inflammatory way. Often, clinicians struggle with telling their patients of the misadventure and when they do, they stumble explaining it."

My background, before dentistry, was in research, and I continued to pursue dental research during dental school through summer studentships. I was fortunate enough to start a project with a world-renowned researcher who had an interest in forensics and bite marks at a molecular level, precisely what bite marks left behind – bacteria.

Having had experience from my previous degree in genotypic analysis, I looked at the bacteria to determine what constituted the dominant strain in a bite mark. This can then be used to determine the perpetrator's identification, so if it is speculated that the perpetrator is a male, e.g., the stepdad of the child, you can swab his teeth and the bite mark and compare the dominant strains. This is particularly important in the first 12 hours, where you can recover enough bacteria to determine the dominant strain and then match it to the possible perpetrator.

After I left, this research went further, and another colleague of mine looked into the dominant strain between twins and found this to be an objective method that can be used at the crime scene after rape or child abuse. Before, they compared the imprint bitemarks left on the skin, which can be subjective and difficult to match.

Once I got into post-grad training, I found research to be more rewarding. I genuinely enjoy having a project where you might do something repetitive whilst searching for an answer. Unfortunately, I did not have enough time to take on a PhD type research, but I continue doing a little research with students. One of the research projects I supervised the Sydney University students through is about to be published in the Australian endodontic journal in May.

If a file fractures, what is one thing you wish you had known as a new graduate or something you advise to all dental professionals when this happens.

I think the most crucial thing when these things happen is communication and management. Try to think about it in three parts:

1. Did you inform the patient of the possible complications of treatment, and did you mention how it will be managed? If so,
2. Did you do so in a non-inflammatory way, and
3. Will a fractured instrument change the treatment outcome?

From the literature, we know that if most of the chemo-mechanical disinfection was completed before a file fracture, the patient would likely heal. It makes no difference whether the fractured file is left or not. It's all about the communication beforehand, which many people tend to skip or do in a hurry because of the urgency of the situation: getting the patient out of pain. Often, clinicians forget that it is not until the second or third visit when the full instrumentation occurs, so I always recommend giving the patient the information before they leave so that they can read about it before the next visit. That's how you make sure they are fully informed!

Being on the Dental Council, I have seen a lot of people dig their own holes. We find that complaints arise when patients are unaware of a file fracture because the dentist fails to inform them. Dentists refrain from telling the patient; they assume no one will find out, or they do not fully disclose the situation as soon as it happens. The most important thing is to inform the patient and deliver the news in a non-inflammatory way. Often, clinicians struggle with telling their patients of the misadventure and when they do, they stumble explaining it. What most clinicians often forget is that these file fractures do not impart a significant impact on the overall treatment outcome. An instrument fracture is a part of treatment and is something that we must accept as a misadventure rather than medical negligence. Many of us will say, "Oh, I feel terrible, I feel so bad. I'll pay for the treatment," and that's when things start to go wrong; clinicians begin to take responsibility for an unfortunate mishap wrongfully. What happens if the case goes pear-shaped and turns into a root fracture and eventual tooth loss? These are the cases where the patient never leaves the dentist alone. They keep blaming the dentist, and before you know it, no one is happy.

"Hot pulp" commonly occurs in lower molars, specifically in the 6-7 area and less commonly in the upper region. This could be due to the lower region's complexity, so whenever you are giving a block, you might be aiming a little lower than you should because you got the anatomy wrong. Also, the tooth is probably located in an inflamed area, meaning there are more tetrodotoxin (TTX) sensitive channels present and the c- fibres are highly resistant to local anaesthetic, meaning you likely require more anaesthetic.

So, I recommend having a good plan, remembering your anatomy, giving the block higher up, similar to a Gow Gates version of the block, together with a higher volume, doing supplementary infiltrations and giving more time for the local anaesthetic to work before the commencement of treatment. Older patients might have more dense structures, so it might take longer to get to those cells and anaesthetize the region entirely. My first block is an ordinary block with a lignocaine. Then I give a Gow Gates, higher up, aspirate, and deposit Scandonest and although this may be seemingly insignificant, what I have done is mixed the drugs. When you look at the pharmacology, when you combine drugs, they become more effective, especially in the local anaesthetic delivery. Anxiety can also play a role, particularly in a patient who has not slept and is inflamed.

How do you overcome 'hot pulp?'

Sometimes you need more time to get them comfortable and into a relaxed state. Nitrous oxide can also be effective in accomplishing this. It gives you a state of euphoria, especially in patients that have been under stress, and when patients feel less stressed, they are less likely to feel pain.

You have accomplished a lot during your career. How did you get into research, and how did you overcome all the challenges that involved?

"So, I recommend having a good plan, remembering your anatomy, giving the block higher up, similar to a Gow Gates version of the block, together with a higher volume, doing supplementary infiltrations and giving more time..."

As I mentioned, I have a background in research. My graduate-entry was in gene therapy, and I had an honours degree in the field of pharmacology and physiology. When I entered dentistry, I had time to do further research and spent my summers doing projects.

I always approached research with a “Can do” attitude and believed that “Persistence is the key to success.”

Although you can fail, you can learn a lot from that failure, which motivated me to go forward. Not every paper or article is going to be revolutionary. If your research is not successful and does not yield results, it can be used as a methodology paper to discuss the shortcomings. Research can pose a lot of challenges, but you can still learn a lot from it. At the end of the day, I think it is not about making a difference; it is about understanding what research entails, especially if you are doing a doctorate, like a Master's. What you are trying to achieve is an overall understanding and, quite possibly, make a difference, albeit small, to the scientific field. It can be challenging and has its downsides but understanding the purpose and the process is the important part. If it were not for research, the COVID vaccine would not exist, and they would not be able to improve on it from vaccine to vaccine. There had to be some research or some science to do this. Some people go, “I'll never do another research project again”, but they still look up and respect the researchers that get a lot of articles published and make a contribution. In the way we practice, the equipment we use and the technology behind it, this all stemmed from research. For example, Nickel-titanium or the more flexible files would not exist. We would still be limited to manual filing and would be having the same sort of procedural problems as we used to have 20-30 years ago if we did not have research.