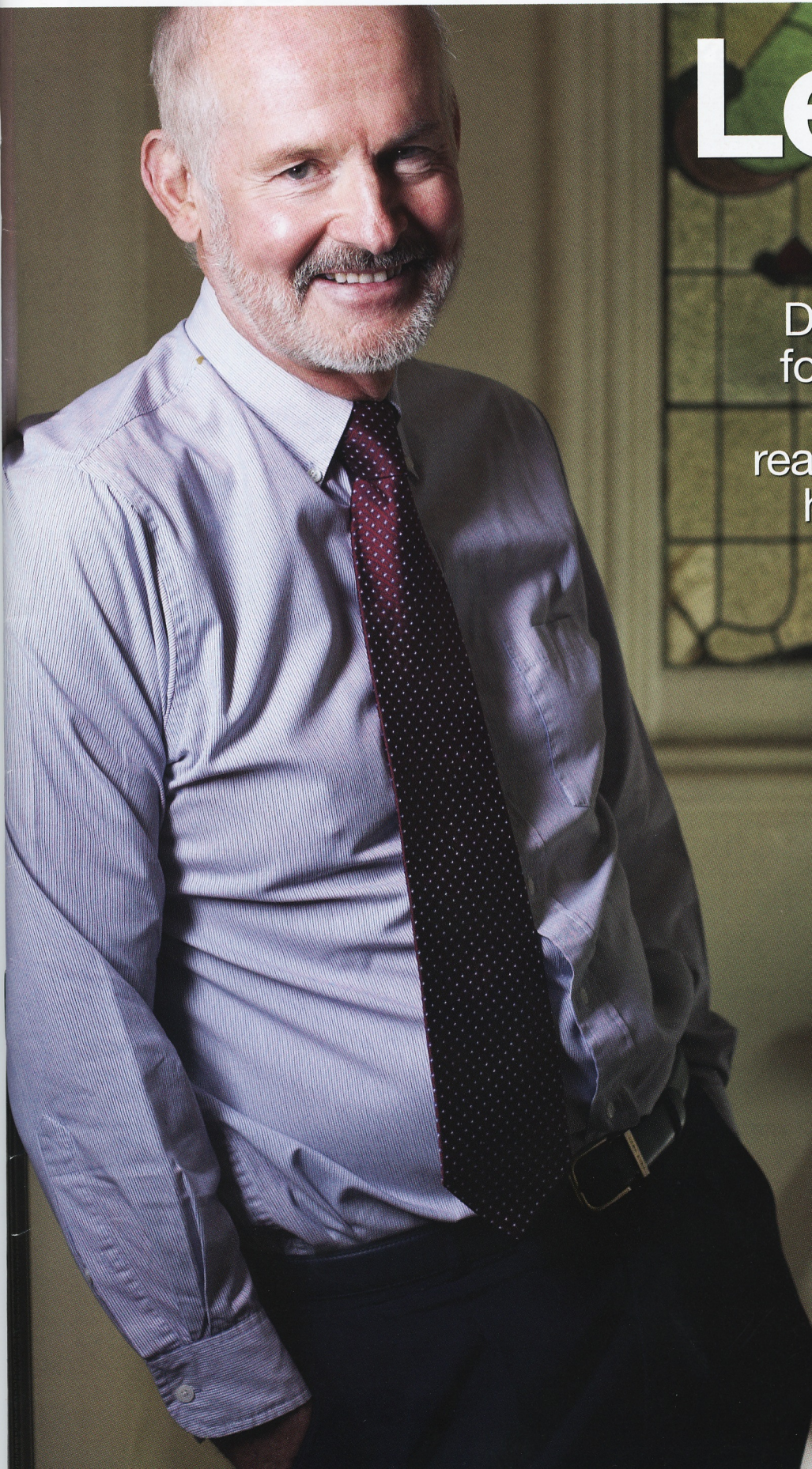


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BETTER BUSINESS FOR DENTISTS



Less is more

Dr Geoff Knight's call for minimally invasive dentistry seems reasonable—so why is he so controversial?

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Article Rob Johnson
Photograph Eamon Gallagher

White Knight

Dr Geoff Knight thinks dentists should try to avoid weakening the structure of teeth. So why is he so controversial?

Given that the basic premise behind what Dr Geoff Knight has been saying for the past couple of decades—that dentistry is flawed, in being the only field of medicine that treats bacterial infection with amputation—you wouldn't expect him to be as polarising a figure as he is. "He's certainly controversial," says Professor Martin Tyas, AM, Professorial Fellow, Melbourne Dental School. "Because a lot of what he's promoting is, in a way, quite revolutionary, some dentists may find that a bit threatening. He does get critical letters about the columns he's written in the *ADA News Bulletin*, which is not a peer-reviewed publication, and indeed I've written a few of those letters myself."

But Dr Knight isn't controversial simply because of what he's saying, but the fact that he's saying it here and now. He's a private practitioner building on his own knowledge and experience at a time when academic study of dentistry is leaning heavily towards evidence-based medicine. He's a leading proponent of minimal intervention at a time when pressures are constantly building around the profession to offer high-yield, maximum-intervention treatments.

"Historically, dentistry started with the concept that decay needed to be removed," he explains. "When I was a dental student in the '70s, we looked at teeth as blocks of ivory. Our textbooks were like maths books—a correct restoration preparation was described in terms of the emergence angle to prep along, and if the pulp got in the way it was bad luck. A successful restoration was one that was still there when the tooth was extracted. While dentists continue to prepare teeth for crowns,

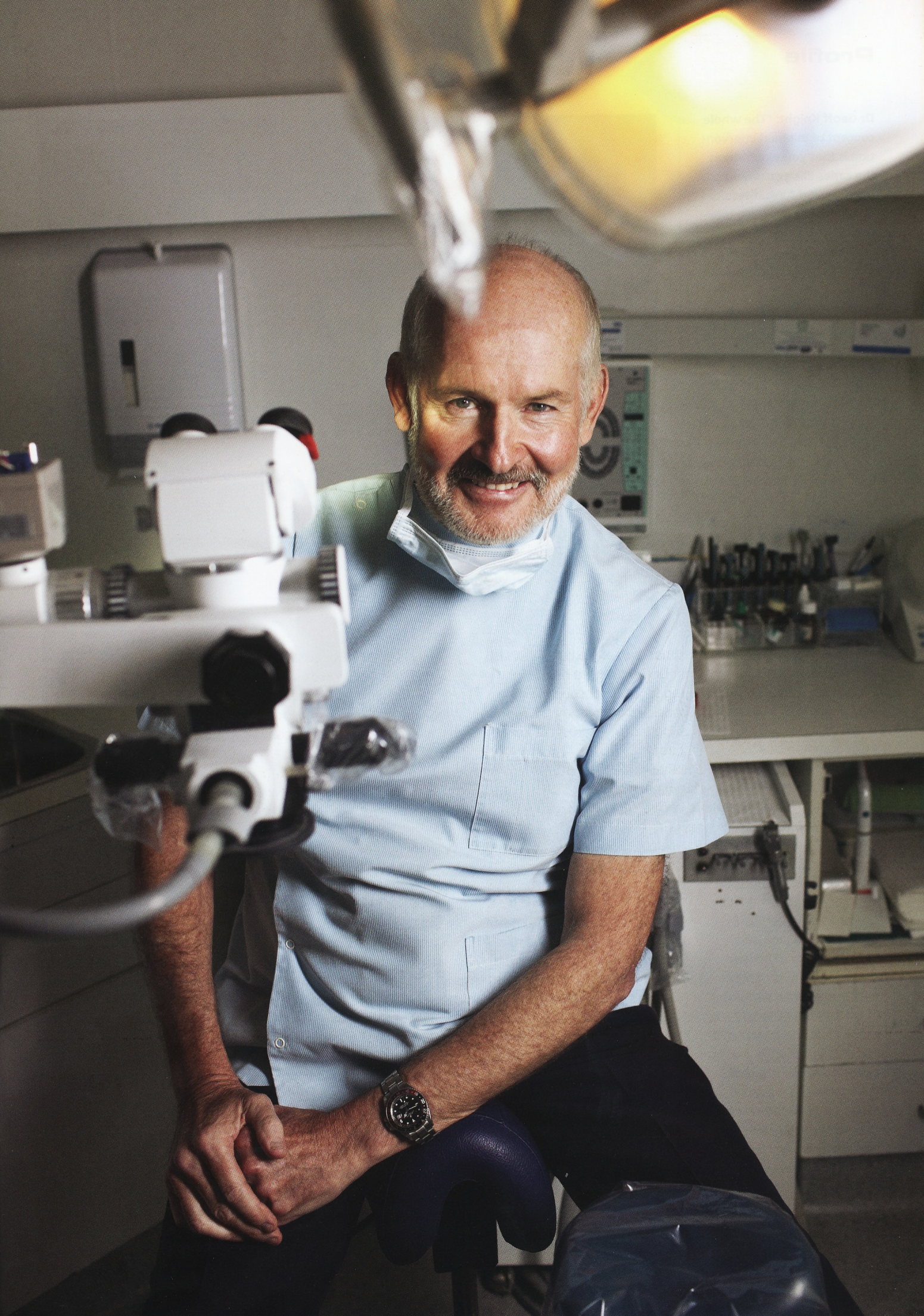
there's a three per cent compounding chance of a root canal, so in ten years there's a 30 per cent chance, and in 30 years there's a 90 per chance."

"I think Geoff is 'good' controversial," continues Martin Tyas. "I think dentistry needs people who can push the boundaries of materials and techniques beyond the norm, and philosophically, I wouldn't say he's wrong. From my perspective, however, there's a big emphasis now on evidence-based treatment. People are looking for clinical evidence of efficacy, and not just within the profession. Geoff often goes beyond the evidence, which is somewhat challenging from a teaching perspective."

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Dr Geoff Knight

On paper, Dr Knight is impressive. A general dentist from Melbourne, he is also an internationally recognised speaker on highly efficient, minimally invasive aesthetic dentistry. He has been lecturing and publishing since the early 1970s, and doing so internationally since the early 1980s. He has been published in *Quintessence International*, *Australian Dental Journal* and *Journal of Periodontal Research*. He has produced a series of clinical videos and written numerous papers on aesthetic and adhesive dentistry that have been translated



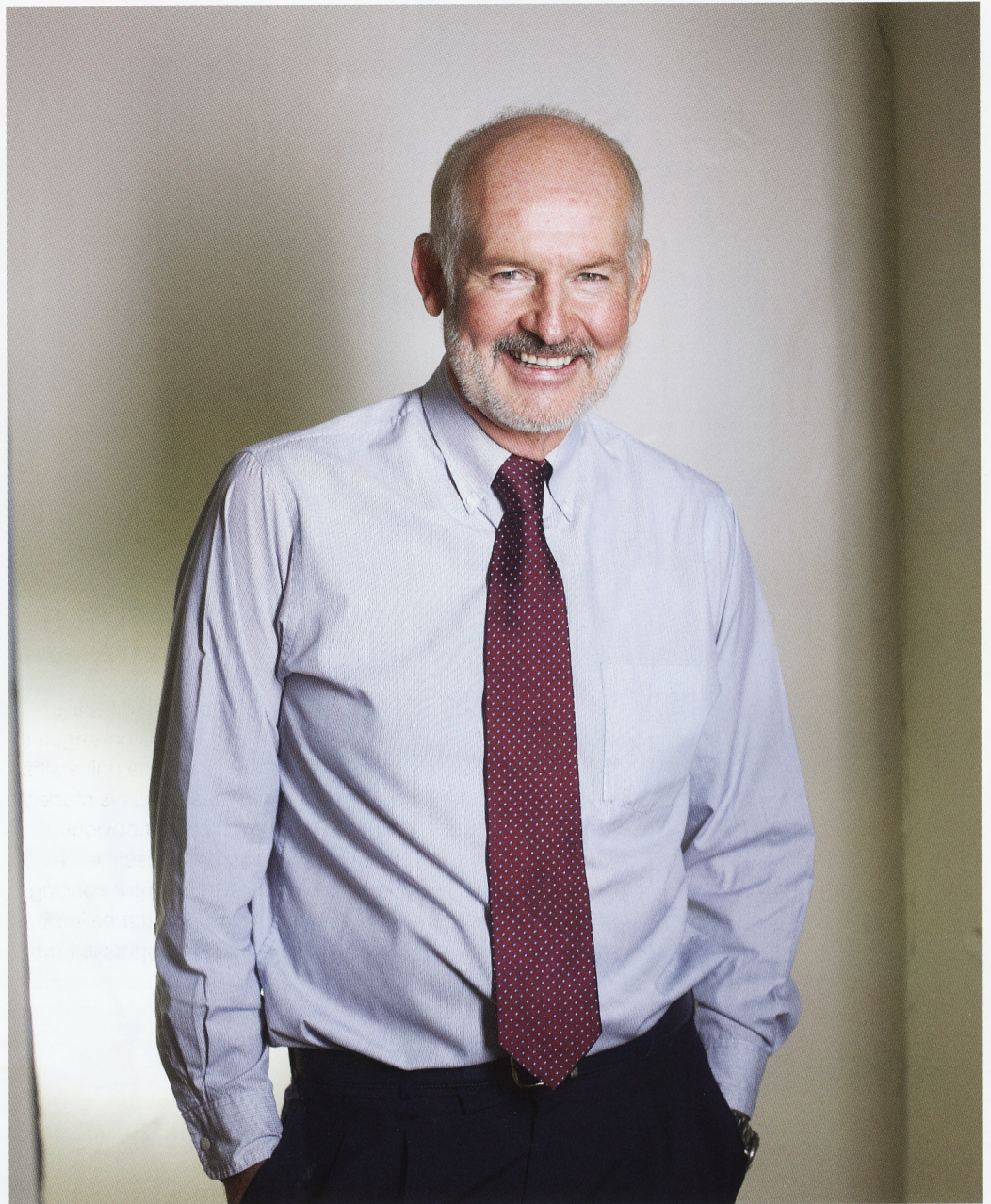
Profile

Dr Geoff Knight: “The whole concept of minimal intervention is that you would treat the caries like you would an open wound.” What results (far right) is a hard, remineralised tissue.

and published in a number of languages. In 1995-96 he was president of the ADA's Victorian branch. He runs. He scuba dives. He has conquered mountains on six continents.

And he says things like this: “If you ask a group of dentists, ‘what’s the most common clinical procedure you do?’ They’ll say it’s replacing existing restorations. This suggests that the current model for restorative dentistry is seriously flawed.”

When he talks about minimally invasive dentistry, it’s hard not to be rapidly convinced—a side effect of many years of honing his arguments, no doubt, but he makes an awful lot of sense. “Dentists believe carious dentine plays no role in intervening in the decay process,” he says. “But dentine is a living tissue—if carious dentine has no protective role in the disease process, dentine would be the only tissue in the body without a front line protection to bacterial invasion.” His PhD, completed in 2008, identified



that demineralised dentine may play a protective role in caries progression.

“The whole concept of minimal intervention is that you actually treat the caries the same way you would treat an open wound,” he continues. “Treat the lesion with an anti-bacterial like ozone or silver fluoride to kill the bacteria, and that assists with the healing. In the same way as placing iodine on a wound improves healing, you the place a dressing (a restoration) to isolate it from a

hostile environment to enable healing to occur as a hard, remineralised tissue.”

His interest in minimally invasive dentistry dates back to the early 1970s, when he was completing his Master of Science at the University of London. He listened to lectures by Dr Harold Loe, the respected periodontist, whose team was doing experimental crown preparations on beagles to investigate bacterial infec-

tions under crowns. “He said in every case there was bacterial invasion at the crown margins,” Knight says. “The crown margin may only be 25 microns wide, but the bacteria are one micron wide, so they can march 25 abreast into the gap and initiate caries. That’s when I started to look at alternatives to full coverage restorations.”

According to Dr Graham Craig, editor of *Dental Outlook* and formerly Associate Professor in the Faculty of Dentistry and subsequently,



Director of the Dental Health Foundation at the University of Sydney, "If you look at dentistry in the US today, it's so mechanical, and what Geoff is doing is trying to bring a more biological approach."

Craig met him after hearing about Knight's technique of tunnel preparation, which involved drilling a shaft straight into decay on an approximal surface in a posterior tooth without destroying the marginal ridge of the tooth. That was many years ago. Craig invited him to Sydney to address dentists through the Dental Health Foundation.

"Geoff and I will often talk about the amount of tooth cut away for a restoration," says Craig. "We have these pressures at the moment, what we're fighting against is unnecessary removal of sound tooth structure, including those full crowns that require aggressive tooth reduction."

Knight puts it even more bluntly: "There is a cycle that promulgates high-end dentistry based on the failed model of restorative care."

It is probably as much this bluntness as the ideas he's espousing that has fired up Knight's critics. And the response of those critics has been both a blessing and a curse. According to Graham Craig, "One of the reasons Geoff started doing his own tours was the result of cancellation of a proposed lecture in New Zealand to be held under the auspices of a dental study club in Christchurch in the South Island. A member of that group contacted a specialist prosthodontist in Sydney asking what Geoff was like, and he was told it was best not to have him speak.

Geoff had all his material prepared, so he decided to do a New Zealand tour on his own without any outside support."

Knight accepts this whilst focussing on where he sees the real battles are to be waged, which is in convincing younger dentists that the minimally invasive model is not only scientifically correct, but financially viable. And that in itself is an uphill battle.

Graham Craig recalls hearing from a colleague at one of the large universities who presented his students with a case of obvious periodontal disease—a patient with clear spacing between the upper-front teeth. The diagnosis from

me," says Graham Craig. "The answer, perhaps, is that a younger version of Geoff has got to come forward and show a practice can be viable using minimal intervention—showing it is a viable business model."

“There are dentists who have closed their mind to this,” Geoff Knight says. He does have respect for critics like Martin Tyas. “Martin’s approach is there is not enough evidence from referenced scientific literature to support some of what Geoff’s saying,” Graham Craig sums up. “Geoff’s approach is someone has to invent something, somewhere, for the evidence to occur. We’ve got two opposed approaches. I respect and like both of them, but it’s a rock and a hard place. Both are very ethical blokes. Geoff’s

“The problem is there are two diverging schools of thought, between minimal intervention and tooth preparation. But it’s a curious observation, that when you ask a group of dentists, ‘who has an implant?’, very few hands emerge.”

Dr Geoff Knight

the students was to put on several crowns.

Knight, in his own lectures, has presented a number of cases where the minimally invasive, more conservative approach will result in better financial outcomes for the practice as well as better health outcomes for the patient.

“It’s hard to get through to younger people, and it’s something that concerns

in private practice, so his whole mindset is that he sees things and says, ‘How do I fix it?’”

“The problem is there are two diverging schools of thought, between minimal intervention, and tooth preparation,” Knight says. “But it’s a curious observation that when you ask a group of dentists, ‘who has an implant?’, very few hands emerge.” □