

Options For The Replacement Of Your Missing Teeth



WARNING

This book contains graphic images of dental implant surgery.

To discuss **your** treatment options with Dr. Shohmelian please follow the instructions on page 145.

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By

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Fellow Of The World Congress Of MicroDentistry

FOUNDER

The Mini Implant Academy

The Australasian Society For Conservative Implant Dentistry

The International Academy For Mini Implant Dentistry



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FOREWORD

In this book, you will learn from an internationally recognized leader in the field of conservative dental implantology who has transformed the lives of thousands of patients and educated hundreds of dentists through his seminars, webinars, and online training programs. Introducing the Father of Keyhole Implant Dentistry, Dr. Joseph Shohmelian.

I first met Dr. Shohmelian in 1996 and decided to take on the role of practice manager after our first meeting. As I write this introduction, I am completing my 20th year of working with him, witnessing how he takes care of his patients, many of whom travel interstate and from overseas to seek his services!

In those early days, he used to perform tooth replacement with surgically-placed dental implants, the technique which is still practised by most implant dentists. However, in 2003 he pioneered the use of a “keyhole” technique for an elderly patient who was not medically suitable for the extensive implant surgery available at that time to replace her nine missing upper teeth.

Since then, countless numbers of patients have benefited from his conservative non-surgical implant techniques, whether performed by him personally or by dentists who have trained under him.

In 2011, with over 8 years of successful results, he was invited to conduct his first seminars for dentists around Australia, which were sponsored by ID HEALTH and the 3M Corporation, revealing the revolutionary, minimally invasive methods he was using to help patients with missing teeth.

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Since then he has conducted many more seminars and established professional organisations both in Australasia and internationally for members who perform these treatments. He also conducts regular webinars for the public and for professionals as well as the online video training programs he has created for dentists.

Needless to say, this information and the conservative keyhole methods that he has been teaching have been so appealing that many dentists who have attended his seminars, webinars and online courses are now successfully treating their own patients.

In my many years of private practice experience, few healthcare practitioners have impressed me with their authenticity as much as Dr. Shohmelian. He is truly genuine in his concern for the welfare of patients who have had the “misfortune” (to use his term) of having had teeth extracted, often through factors beyond their control.

In his seminars he asks attendees to consider this question:

“Why should anyone in this day and age have to undergo surgery for an implant or have their natural teeth compromised for a bridge or be condemned to wear a removable denture to have their missing teeth replaced?” This helps dentists ask themselves why they are offering outdated vintage techniques to their patients and opens the way for them to consider changing their thinking, once they see the benefits of the conservative methods he teaches!

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He has revolutionised the dental profession with the introduction of the concept of “Keyhole mini implant dentistry for crowns and bridges to replace missing teeth”, bringing into question the validity of other methods in this day and age:

- He does not accept that anyone should be permanently “condemned” to wearing removable false teeth any longer, especially as such (partial) dentures can contribute to more decay and eventual loss of additional teeth!
- He does not accept that good teeth on either side of a gap should be permanently damaged to carry a bridge, especially as statistics show the average lifespan of a bridge is under 10 years, leading to potential loss of the adjacent teeth!
- He does not accept that patients need to have their gums cut open to reveal their jawbones so that healthy bone can be drilled out to create deep, wide channels to accommodate “conventional” implants.
- He does not accept that the majority of patients need to wait for 6 months before receiving their new teeth!
- He does not accept that additional surgery is warranted to take bone from the chin, back of the lower jaw, ribs or pelvis to graft into narrow gum ridges before placing implants to carry permanent teeth!
- He does not accept the need for sinus surgery to graft bone to carry conventional implants in areas where bone depth is deficient.

He is a champion for conservative, minimally invasive, non-surgical implant placements to save patients from the unnecessary complexities mentioned above, even in areas of the jaws with absolutely minimal bony foundation.

If there is one practitioner who cares for the comfort and long-term well-being of patients with missing teeth, it's this man!

I hope you enjoy reading this book and benefit from the wisdom and decades of experience he shares with you.

Shannon Martin

Practice Manager

The Australian National Centre For Keyhole Implant Dentistry

Sydney, Australia

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Why Do We Lose Permanent Teeth?

Thank you for your interest in this very important topic! Millions of people around the world live their lives with one or more missing teeth. You are probably one of them! You may have even had some of your missing teeth replaced with removable partial dentures, bridges or even had surgery for titanium or ceramic implants. Perhaps you have lost all of your teeth and are wearing complete dentures!

It is very upsetting for me as a preventive dentist with over four decades of clinical experience, to see the damage that so many patients have suffered during their lives. I often ask myself when examining a patient, why they needed to lose their teeth, if they needed to at all! Was it absolutely necessary? Weren't there any options to save them or was it due to dentists making decisions based on their own limited skill levels? Perhaps their dentists did not offer more complex treatments to salvage them, like root canal therapy and crowns because of their assessment of the patient's ability to afford such treatments? Perhaps they *were* indeed offered better options but they simply could not afford them at the time?

Either way, before we start on our journey of discovery about modern methods for the replacement of missing or extracted teeth, let me just say that I would encourage you to avoid the need for any further extractions in the future! It is in your best interests to get a second opinion if a dentist recommends the removal of a tooth or a number of your teeth. It will save

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you having to have a variety of treatments that we are going to discuss in this book.

Before we start discussing the modern options for the replacement of your missing teeth, let's firstly discuss why teeth are removed. Sometimes it's unavoidable, for example, if you have baby teeth that don't have a permanent successor. Or perhaps you suffer a fall that fractures the root of your tooth high up under the gum and cannot be saved. Sometimes, patients have root treated teeth which have posts in them, often to support porcelain crowns. Such posts are potentially able to lead to vertical root fractures which results in infections and the inevitable loss of such teeth.

Many teeth which cannot be salvaged have suffered major damage in our childhood years when we were completely unaware of the damaging effect of our desire for sweet treats and the need for dental hygiene!

That craving for sugary snacks can often lead to cavities about 3 to 4 years after the teeth emerge from the gums! And considering the fact that most of us start getting our permanent back teeth at age 6 and by age 12 have a total of 8 large molars, not to mention 8 premolars, 4 canines and 8 incisors, it's not surprising that by the time we get to our mid teens, we have had multiple fillings and possibly suffered some toothaches. Unfortunately, it is very common that such toothaches lead to the extraction of the first molars which normally emerge at around age 6 and sustain the greatest amount of damage early in life! Furthermore, even if they are not extracted at an early age, the damage caused by deep decay can lead to eventual loss in later life. This is even more frustrating when considering the life cycle of such teeth which suffer multiple episodes of decay which result in toothache at some

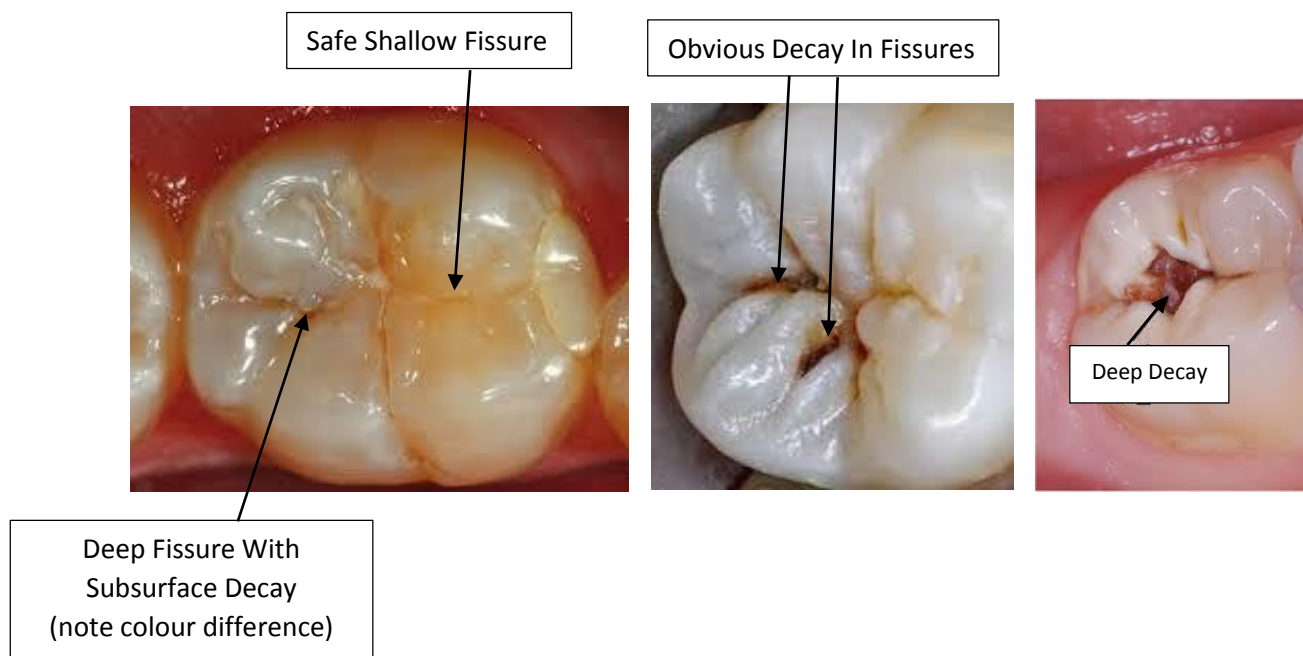
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point in time, followed by root canal therapy, crown, secondary decay or root fracture, infection then extraction! Needless to say, such ongoing treatment can generate substantial cost over many decades, making it more disappointing when extraction is eventually required.

Do you know why your back teeth are more likely to decay than the front teeth? It's a simple matter of cleansability! Front teeth are smooth all over with a relatively narrow edge for biting into food. In contrast, the molars have large chewing surfaces which most commonly have deep grooves, called fissures, which can vary in complexity and depth. Some are shallow and wide, allowing for easy and effective brushing. In contrast, they can be deep and narrow, narrower than a single toothbrush bristle, making them impossible to clean. However, as far as bacteria and sugar molecules are concerned, these narrow fissures are as wide as a major highway leading right into the pulp or "nerve", situated deep within your molars!



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Given a child's love of sweet sugary foods, if combined with susceptible surface contours, the decay can break through the base of the fissures and spread like wildfire into the centrally-located pulp of these teeth, resulting in severe toothache, sleepless nights and possible extraction by the age of 10 to 15 loss of a molar that was meant to potentially last a lifetime!



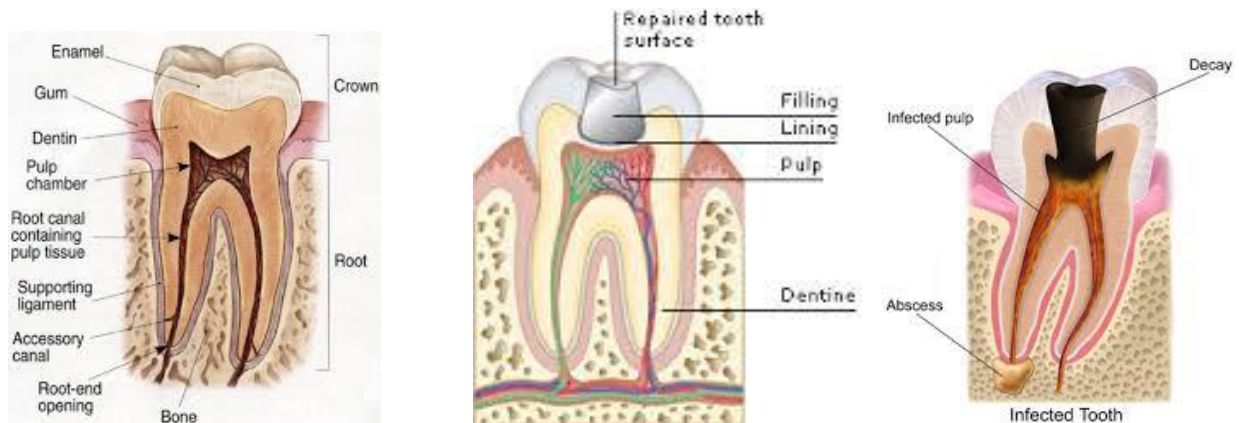
But why would a dentist recommend extraction of a tooth rather than fill it?

When toothache strikes, it means that the damage is very deep, well beyond the stage where a filling could have remedied the problem. A filling is ideal while the decay has not penetrated into the pulp. Once the pulp is infected by bacteria, it starts to become inflamed, swollen, highly sensitive to cold and sweet at first, and often to heat as the degenerative process continues. Sometimes the pulp simply dies without symptoms until a severe throbbing pain arises as a consequence of abscess formation at the tip of the root(s). The death of the pulp is best described as rotting flesh within the tooth, an incompatible condition within a healthy body, a condition that leads to infection within the jawbone as well as potentially serious facial swellings and even septicaemia.

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Accordingly, the only way to avoid spread of the infection from inside the tooth into the jawbones and then into the bloodstream and to other organs is to either perform root canal therapy or extraction. Although root canal therapy is preferable, most children will not tolerate such complex treatment unless it is performed under sedation or general anaesthesia. The cost of specialist endodontic treatment, coupled with the administration of an anaesthetic by a qualified paediatric anaesthetist can be inhibitive for most parents and for that reason, the option to extract becomes the most acceptable. Various other factors may be relevant in making this decision, such as the presence of multiple other cavities requiring treatment or the presence of wisdom teeth which may have otherwise become impacted but which may be able to benefit from the additional space created by extraction of an offending molar. In general however, it is the practicalities and cost of treatment that lead to the decision to extract rather than salvage these molars.

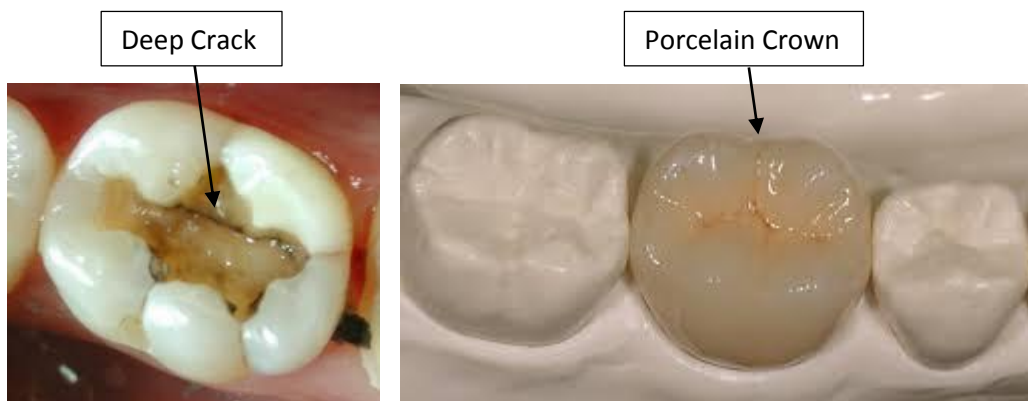
Given the early emergence of the first molars at the age of six and the decay-prone fissures on their chewing surface, it's unfortunate that some teeth

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decay beyond repair at an early stage of life. However, at times, especially in adult life, dentists may make a decision to remove a tooth rather than to offer available treatments to save it due to a variety of factors, one of which is the actual skill level of the dentist in performing complex restorative dentistry. For example, a painful molar that has a deep crack may be extracted by some, while others will effectively restore it with a crown after performing root canal therapy.



But if you have lost some teeth and you really don't like the idea of wearing a partial denture for the rest of your life, or you are just dissatisfied with the other options that have been offered to you, you are about to find out about the best modern method in non-removable tooth replacement that will improve your quality of life well beyond what you can imagine!

It's called Keyhole Mini Implant Dentistry.

What Makes Me An Authority On This Topic?

I graduated as a Dental Surgeon from the University of Sydney in 1978 during a period when the average number of decayed, missing or filled teeth was more than 20 per adult! It was common to examine a patient and find multiple new cavities, lots of previously treated teeth and often a few that were no longer salvageable. I even recall having to take care of a 16 year old young lady whose upper teeth were so terribly decayed that the parents wanted them all removed and replaced with a complete upper denture! That was back in 1980 and during the following 20 years the incidence of tooth decay in most of my patients started to decrease as people became more aware of proper diet and dental care. The first image below shows a set of teeth which have not been damaged by tooth decay while the second is a typical example of the condition in most adults' mouths who have not had the benefit of exposure to fluoridated water in their developmental years.



Most members of the pre-fluoride generation have suffered extensive dental repairs during their early years and as a consequence of the weakness in their back teeth, often have breakages which result in the need to repair them

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with crowns. Some fractures however are too deep and result in the need for root canal therapy and crowns or extraction.



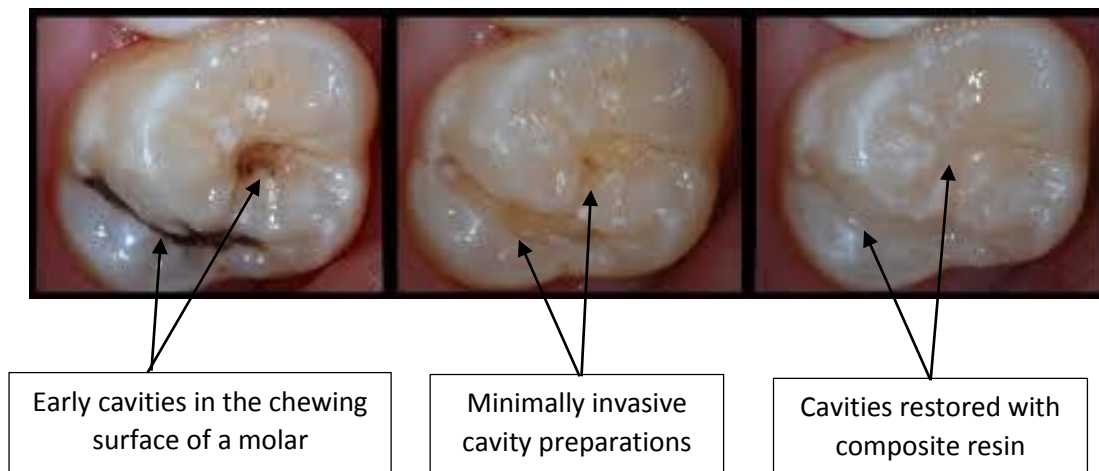
In sharp contrast to the pre-fluoride generation, over the past 15 years I have observed that the number of decayed, filled or missing teeth amongst adults under the age of 50 has decreased to virtually 0.1 per patient. This can be attributed to better diets and parental awareness of proper dental hygiene but also to the benefits of drinking fluoridated water during the first 10 years of life while teeth are developing under the gums. With effective education in the home, at school and through advertisements in the general media, the awareness of dietary control with regards the frequency of sugar intake and the need to brush and floss daily has become general knowledge amongst most communities.

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Furthermore, when treating cavities for these patients, most dentists have been using minimally invasive techniques since the early 1990's, thereby maintaining the integrity of tooth structure while performing small repairs, rather than drilling much larger cavities, as was the case in the past. This has resulted in far less structural weakness in teeth that have suffered decay, thereby protecting them from the potential need for more complex repairs in the future.



The concept of “minimally invasive dentistry” is of paramount importance to your well-being, not just in maintaining the structural integrity of your teeth, but also when applied to replacing missing teeth, as you will soon discover in the chapters that follow.

For most adult patients however who have needed extensive repairs and have lost some teeth along the way or for those who may lose a tooth in the future, knowing about the various options available for replacement can avoid unnecessary embarrassment, suffering and expense.

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Early in my career as a private practitioner, I discovered that dentures and bridges were not the complete answer for the tooth replacement problems of all my patients. I was forced to find viable alternatives to solve a variety of problems which could not be addressed with the limited techniques we had been taught in the Faculty of Dentistry at Sydney University. In 1984, that passion to find the answers led me to discover the new and exciting field of Dental Implantology.

Four years later, by 1988, I had developed enough skill to qualify for a Fellowship from the International Congress of Oral Implantologists which is based in New York. In recognition of my commitment and expertise, I was elected by my peers as a Federal Committee Member of the Australian Society For Implant Dentistry, a professional body that conducts courses to train dentists to perform implant replacements for patients with missing teeth.

The picture below was taken in May 1988 on the day I was awarded my Fellowship by the Executive Committee of the Australian Society For Implant Dentistry at an intimate event on the shores of Sydney Harbour.



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As already mentioned, in my early years, the only methods I could offer patients were either a removable partial denture or a bridge, both of which had severe limitations. But from 1984 onwards I was able to provide solutions in the form of implants which allowed for **non-removable** false teeth, but which required surgery, often two episodes of surgery six months apart.

Those surgical implant techniques are still performed by the vast majority of dentists who are trained in implant dentistry, techniques which I shall discuss in detail later.

As with every kind of treatment, these too had their limitations, especially for patients who, for various reasons, were not good candidates for such invasive oral surgery.

After nearly 20 years of performing these complex implant treatments, in 2003 I came across a new type of implant specifically made for stabilising **removable** complete dentures, especially applicable to the lower jaw where routinely, such dentures are loose and unstable.

Immediately, I envisaged the potential for more expanded applications of these implants to create non-removable solutions with crowns and bridges which could SIMPLIFY the entire implant process!

It was fortuitous that earlier that week I had consulted with one of my patients, age 78, who had wanted an implant-supported 9-tooth porcelain bridge for her upper jaw but who was medically unfit for the usual surgical procedure. Upon discussing with her the possibility of an alternative treatment using “Keyhole Mini Dental Implants”, she consented to be the first person in Australia to undergo this new technique to secure a beautiful

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porcelain bridge that could give her a new-found freedom to enjoy more out of life than she had for quite a while.

The result was fantastic and her life improved dramatically as did mine!



It was the most gratifying procedure I have ever performed, because for over 12 years, she was free from having to wear false teeth in the form of her large removable acrylic partial denture, a denture which she did not like one bit! As a socially very active person, the frustration of wearing a large cumbersome denture was lifted from her life as a result of this treatment.

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As you can see from the image of her original denture above, it was very large, covering her entire palate and limiting her ability to enjoy so much of the flavours and textures of foods that we take for granted.

Sadly, at the age of 90 she passed away.

Knowing that for the last 12 years of her life, she was able to gain greater enjoyment than she had had for many years, has been a wonderful blessing for me. Not only was it wonderful to be able to help this fearless lady but because of her trust in my recommendations and my skills, I gained faith in the system, allowing me to help hundreds of patients personally since then to enjoy a better quality of life.

Furthermore, the successful outcome of her treatment became the inspiration for the seminars which I have conducted regularly since 2011 and for the webinars and online training courses which have positively changed the treatments performed by hundreds of dentists in Australia, USA, New Zealand, Europe and South America, improving the lives of countless patients around the world.

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So now, with over 30 years of experience in dental implantology and having become known as the “Father of Keyhole Mini Implant Dentistry” it is very humbling to know that you and so many others are reading this book and are about to learn how to best replace your missing teeth without unnecessary pain, suffering and excessive costs.

As a natural consequence of the knowledge I have gained and which I share in my educational events, in 2011 I founded the Australasian Society For Conservative Implant Dentistry, a society that teaches practitioners and the community about methods of replacing teeth without surgical intervention. I have included above few images of some of the attendees who are now certified members. A current list of these members is available at www.ASCID.org which is a handy resource to locate a dentist, possibly in your locality, who has knowledge about the treatments described in this book. For additional resources in the USA and internationally, please see page 121.

In addition to these educational events, I have personally coached and trained many of these dentists in their own clinics, ensuring that they have gained the ability to properly take care of their future patients. Here are just a few images of dentists who have taken me on as their mentor.



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Although I have conducted multiple seminars over the past few years and personally coached many practitioners in this field, my most enjoyable activity is that of helping patients one-on-one, being able to assist them to get rid of their gaps or their dentures and enjoy a much better quality of life than they may have had to date.



I am so passionate about protecting the public from unnecessary pain, suffering and expense associated with replacing their missing teeth, that I intend to continue championing this cause through live seminars,

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publications, webinars and online training courses to spread the word amongst the dental profession that THERE IS A BETTER WAY to solve their patients' problems than the limited knowledge they have gained in the colleges and dental faculties around the world.

After all, someone has to be the pioneer of change if we are to progress into new frontiers that will improve the quality of life for those around us.

This publication is part of that challenge. I trust that as you read on you will appreciate why every dentist not only needs to **know** about this method but also needs to be able to **perform** these treatments. Furthermore, the worldwide community of patients who rely upon the advice of dentists needs to become aware of their options, especially THIS option which has been proven time and time again to be PREFERRED by 100% of INFORMED PATIENTS, patients like you, who will know **more** than most dentists once you have read this book! I wish I could personally give you a graduation certificate for the new knowledge you are about to receive but unfortunately I can't! However, the benefits of this knowledge are far more valuable to you than any graduation certificate I could give you. Welcome to your first class in "Options To Replace Your Missing Teeth". Happy studies!



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Why Keyhole Mini Implant Dentistry?

As the name implies, “keyhole” implant dentistry is the most minimally invasive, conservative, painless, desirable and affordable method to replace your missing teeth. The preference amongst everyone with whom I have consulted over the years is to replace their missing teeth with non-removable porcelain crown and bridgework, without damage to adjacent teeth, without having their gums cut open, without stitches, without pain and swelling, without a lengthy healing period, without high cost but with proven high success rates.

All of these are desirable elements of the treatment that you need to consider. Nobody wants damage to their natural teeth, incisions, stitches, pain or the excessive costs that can be associated with complex implant techniques. Keyhole Mini Implant Dentistry satisfies each of these requirements and is performed under local anaesthesia, eliminating the risks and additional cost of general anaesthesia!

Placement of the implant is virtually bloodless and takes no more than half an hour from the moment you walk into the operator. A temporary tooth is made to cover the visible part of the implant and the permanent porcelain tooth is attached just 1-2 weeks later, depending on how quickly the laboratory can create it.

At that second visit there is no need for anaesthesia. The temporary crown is removed and within 20 minutes your new crown can be attached to the implant with a bio-compatible dental cement!

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This is a fantastic technology that has made implant treatments far more “pleasant” for patients than complex standard surgical implants while still maintaining the same very high success rates of around 95% over a 10 year period. It has also made it more affordable for a broader cross-section of our communities who have not been able to consider having conventional implant treatments in the past due to the high cost. And due to the high cost, vast numbers of these patients have had to resign themselves to living with missing teeth or having to cope with removable dentures which are often not well-tolerated, especially in the lower jaw.



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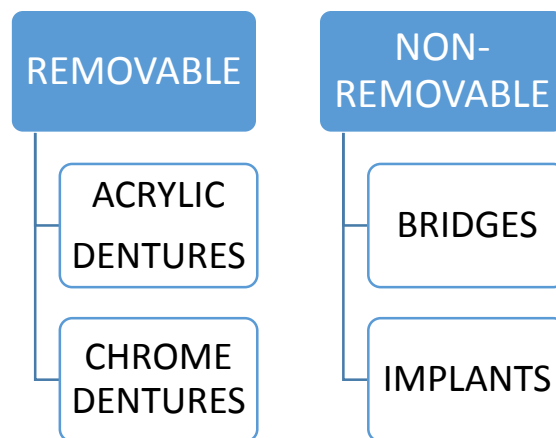
Your Current Options For Tooth Replacement

To replace your missing teeth you currently have a number of different options which we shall go through in detail.

There are two categories: **removable** and **non-removable** replacements.

Removable replacements come in the form of acrylic dentures and chrome dentures. Non-removable are comprised of bridges or implants.

Each method has a number of concerns associated with them which I shall describe shortly but as mentioned earlier, the non-removable option that is most ideal in this day and age is the keyhole technique of placing narrow diameter “mini” implants in your jaws to carry porcelain teeth.



Let's go through each option, one by one, in the chapters that follow.

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Removable Partial Dentures

As the name implies, this method requires the creation of removable teeth to replace those which are missing. Needless to say, such teeth need to be connected to a foundation that will give them the ability to stay in the mouth while still being able to be removed when required.



For this reason, the replacement teeth are attached to either an acrylic “baseplate” or a chrome frame. Both of these structures are custom-made on plaster casts of your jaws to precisely fit the contours of your mouth.



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The teeth are carried by the baseplate or chrome frame which also carry the “clasps” or retainers which keep the denture in place.

Clasps are carefully designed to grip selected natural teeth in your jaws to stabilise the denture and resist dislodging forces while chewing. They are usually made of stainless steel wire or cast chrome.



The former can be adjusted easily by your dentist to fit tightly without fear of breakage. However, even the most minimal bending of a cast chrome clasp could result in fracture! So avoid the temptation to adjust them yourself unless you are prepared to pay for a completely new chrome partial denture if you lose a clasp or two!



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Whether you choose an acrylic partial denture or a chrome, please be aware that both types are very unnatural, as they sit ON the gums and not IN the gums like natural teeth. They cover much of the palate or the gums on the inner surfaces of your lower teeth, and with time, may allow for further damage due to the increased surface area that harbours plaque and bacteria.

Clinical experience has shown that in the lower jaw partial dentures are not tolerated well unless a front tooth is involved! They often cause annoyance to the tongue, especially if made of thick acrylic to maximise strength and to avoid fracture of the baseplate. Most dentists have found that if these dentures are required only for the replacement of back teeth to improve the ability to chew, they usually end up in the patient's drawer rather than in their mouths! The fact that they sit ON the gums, often overlying sharp bony ridges, means that they are potentially quite uncomfortable when direct pressure is exerted during chewing accordingly, we often find that patients really dislike wearing such dentures!

One other frustration that is part of wearing partial dentures is the need for removal and cleaning after every meal. Needless to say, thorough brushing and flossing of your natural teeth is essential if you want to avoid additional cavities and gum disease. For these reasons, it is best to leave them out at night and place them in a glass of water. It is understandable that if the denture replaces front teeth, it may be a cause of embarrassment, especially if your partner is unaware of your "little secret". However, in the interests of your long-term dental health, please do not leave your dentures in your mouth for any longer than absolutely essential.

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Around 12 months ago, one of my patients was in a London hotel and was forced to leave his room in the middle of the night due to a serious fire that had broken out on his floor. Unfortunately, the clothes he had in his room were destroyed as was his partial denture which, as a result of the panic, he had left behind in a glass of water in the bathroom! Although the insurance company provided clothing for his trip back to Sydney, there was no time to replace his partial denture, resulting in having to travel back to Australia without any front teeth! Needless to say, we placed an urgent request to our technical laboratory when we ordered his new replacement denture!

He has since had those missing teeth replaced with non-removable implanted teeth so in case of a similar incident happening in the future, his teeth will accompany him on the plane all the way back home!



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Acrylic Partial Dentures



The image above shows a large plastic baseplate which covers most of the palate. Such coverage leads to a loss of the thermal sensations and textures of food and drink. In contrast, most patients who get rid of their dentures do report that they have experienced a heightened enjoyment of foods and therefore, of life in general! After all, the sense of taste is a powerful source of the enjoyment we all derive from life, especially when one has the opportunity to enjoy the unique foods from the various cultures that now inhabit most of our modern societies.

Another major drawback with acrylic dentures is that they are subject to breakage if dropped on a tiled bathroom floor or in the wash basin, and depending on the thickness of the baseplate, they can even break while chewing. This of course, can happen at the most inappropriate times! The good news is though, they are relatively easy to repair by your local dentist, dental prosthetist, dental technician or in the absence of any of these

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professionals, in an emergency, with some form of denture repair kit or non-toxic glue!

If a repair is not possible, rest assured that fabrication of acrylic partial dentures is relatively easy and in urgent circumstances, a laboratory can create one in less than 24 hours!



In cases where large breakages occur a number of times, a metal mesh is best incorporated inside the baseplate to reduce the risk of recurrence. This however, cannot be inserted into an existing denture but must be incorporated during the fabrication of a new denture.

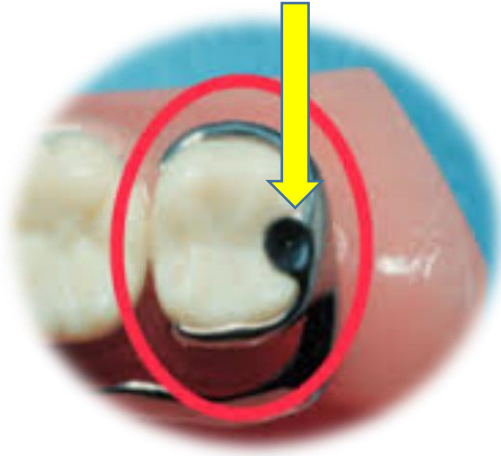


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It is important to note here that most commonly, acrylic dentures are missing an important design element known as an “occlusal rest”. As the name implies, these rests sit on the chewing surfaces of adjacent teeth and stop the denture from being pushed up into the gums during chewing.



Without these rests, over a period of years, the acrylic can strip the gum from the teeth, and for that reason, these dentures are also called “gum strippers”.

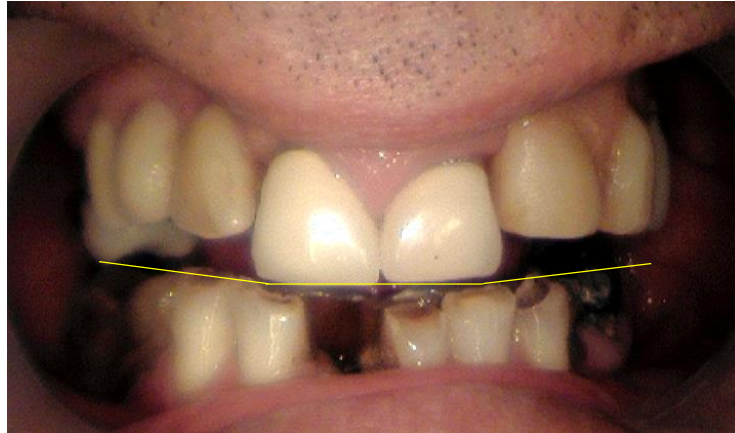


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Needless to say, in such cases, as the denture sinks into the soft tissues, the alignment of the teeth will change, with the denture teeth appearing shorter than the surrounding natural teeth. In the image below, the side teeth on the denture have sunk into the gums by at least 3mms over the years!



Occlusal rests therefore, are an integral part of the design for chrome dentures and are virtually always incorporated as part of the clasping mechanism, as seen in the images below. They not only provide resistance against dislodgement of the denture but also vertical stabilisation to avoid stripping the gums.

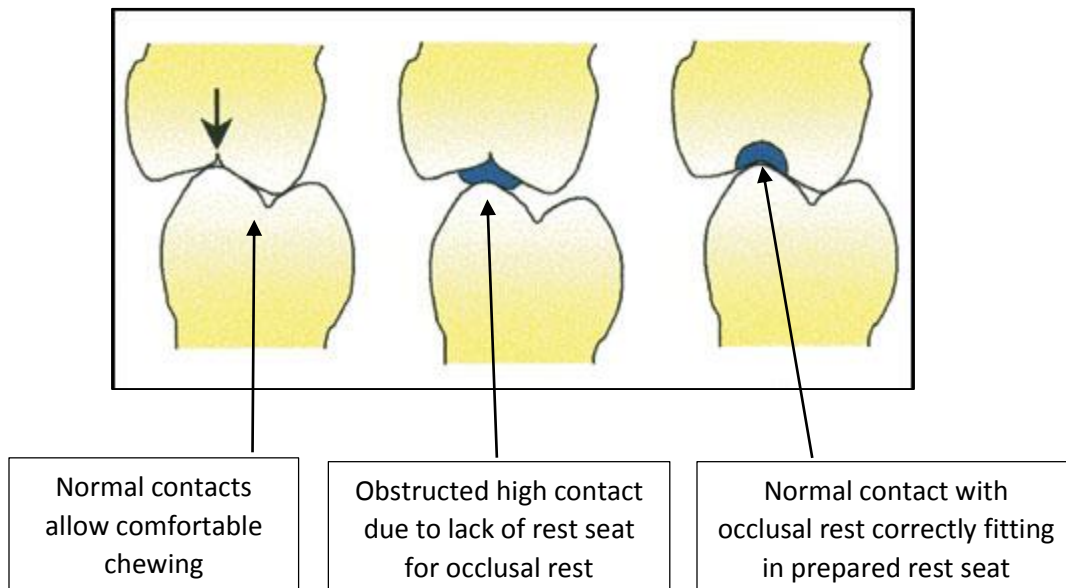
One important preliminary step is required when considering the incorporation of occlusal rests. The teeth which are to carry them must firstly be modified by creating a “rest seat” by removing at least 1mm of the tooth surface. Otherwise, the occlusal rest will interfere in your ability to bite correctly as there will be a 1mm thick layer of metal sitting between your upper and lower teeth, making chewing very uncomfortable. The modification to the chewing surface of these teeth is not something that

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causes decay or any long-term problems as these “rest seats” are not deep enough to trap food particles or retain plaque. Furthermore, because the reduction is carried out only within the thick enamel layer of selected teeth or on the surface of existing fillings and crowns, it is a painless procedure no needles required!



In the image below, the yellow arrows identify three occlusal rests which are located on the back teeth in association with the retentive clasps. However, there is one other (red arrow) that is resting on its own on the canine at the top right of this image.

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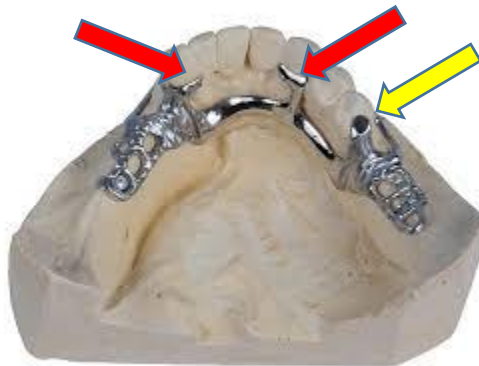
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This (red) rest, known as a “cingulum rest”, has no relation to any retentive clasps. This is simply a variation of the concept of occlusal rests and derives its name from the anatomical term for that area of the tooth on which it rests.

The next image below shows three occlusal rests also but whereas the back one (yellow arrow) is part of a clasping mechanism, the two at the top of the image (red arrows) are not, but have been incorporated for two other important reasons:

1. To stabilise the chrome lingual connection bar so that it does not potentially impinge on the gums, and
2. To counteract any tilting forces e.g from sticky foods that may lift the back teeth on the denture (mesh section of the framework).



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At times, there may not be enough back teeth to allow for clasps. In such cases, most dentists have no choice but to place the clasps on the remaining front teeth. As you can imagine, aesthetics is of major concern in such areas and for patients with smiles that reveal their gums, this often can result in a less-than-ideal appearance, as in the image below. Understandably, such patients will not smile freely, covering their mouths when necessary to avoid revealing these ugly clasps!



To avoid this, some dentists may make an acrylic denture without clasps, sometimes relying on denture adhesive products to improve retention.



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However, with modern advances in plastics, some dentists are making dentures with more aesthetic flexible acrylic clasps to mimic the gum and grip around the neck of the few remaining teeth, as in the image below.



Using various techniques available to practitioners of keyhole mini implant dentistry, a partial denture can be connected without the need for unsightly clasps on front teeth or using messy denture adhesives. We simply place mini implants in ideal locations in the jaws and connect the denture with precision attachments. Remember the image below? This patient only had two front teeth and a few back teeth left to retain a partial denture.



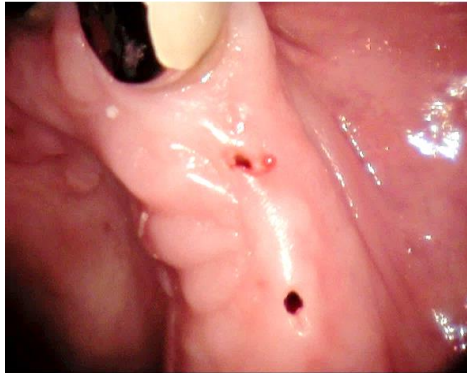
By inserting two keyhole mini dental implants on each side through very small openings in the gum and by connecting to precision attachments

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within the denture base, a stable and cosmetically superior result was achieved!



It's because of all these factors and others which are summarised below that I consider acrylic partial dentures to be undesirable as a permanent solution, but rather, for use only as a temporary means of replacing missing teeth.

For example, following extractions it takes a minimum of 6 months before the jaws are ready for implants. Where a front tooth is involved, a temporary acrylic denture is an essential part of the overall treatment plan if aesthetics are to be restored during the six month healing period. When back teeth are lost, a temporary acrylic denture is an ideal and inexpensive way of regaining

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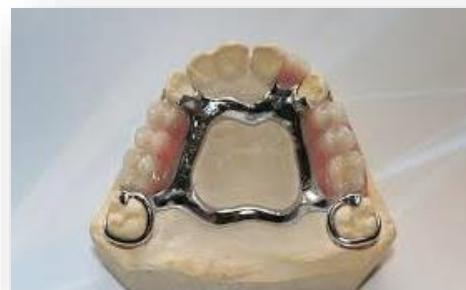
chewing ability while awaiting implants. However, as a permanent solution, they suffer from the following deficiencies:

- Excessive coverage of soft tissues
- Subject to breakage during chewing
- Inability to create ideal occlusal rests
- Reduced enjoyment of the textures and flavours of food
- Need for denture adhesives

More About Chrome Partial Dentures

The second option in terms of removable dentures is that of a chrome partial denture. Chrome partial dentures are also unnatural in that they sit *on* the gums and not *in* the gums. They cover less of the palate but with time, they too may contribute to damage to adjacent teeth. Although the frame is sturdy and not subject to breakage, clasps do have the potential to fracture, especially if one attempts to bend them to create better retention.

If you decide to choose dentures as your option to replace your missing teeth, these are better as a long-term solution than the acrylic version. The image below shows two dentures for the same patient. As is clearly visible, the chrome frame is far less obtrusive than the acrylic and most importantly, occlusal rests have been incorporated into the design to create a stable structure that is not subject to sinking into the gums over the years.



Chrome partial dentures have the ability to last for decades and although they are far less damaging than their acrylic counterparts, there *are* better options, as you will soon find out.

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Non-Removable Bridges On Natural Teeth

The most common non-removable option for missing teeth is a porcelain bridge which is permanently attached to a tooth on either side of the gap. These teeth are known as “abutments” while the tooth which is being replaced is known as the “pontic”.



As you can see in the image above, the adjacent teeth need to be precisely reshaped by drilling away the protective enamel layer. This really means permanently damaging these teeth by removing around 1.5mms from all four sides and the chewing surface. This allows the laboratory ceramist enough room to create the layers of porcelain on top of the frame which can be made of metal or a very hard porcelain called “zirconium”. Once the laboratory creates the bridge, it is trial-fitted onto the abutments and if perfect, is then permanently attached with biocompatible cements.

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A bridge can replace a single tooth



..... multiple teeth in a row



..... or even an entire jaw of missing teeth, provided that there are enough strong and reliable abutments to act as long-term supports.



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Although bridges have played an important role in replacing missing teeth for many decades, we have better options now which do not require permanent damage to the natural teeth! Of course, I am referring to implants which act as artificial roots for individual porcelain teeth or for bridges.

Let's consider the consequences of permanently reshaping or reducing the structure of the abutment teeth.

The most important requirement for a bridge is the sufficient reduction of the teeth on either side of the gap to allow for ease of insertion and removal. As already mentioned, this is achieved by drilling away 1-1.5mm of tooth structure on all four sides and on the chewing surface.



If too much tooth structure is removed, sensitivity can become a significant complication after treatment has been completed, often lasting for months. However, sometimes the drilling process may expose the nerve, resulting in the need for root canal therapy of an abutment tooth.

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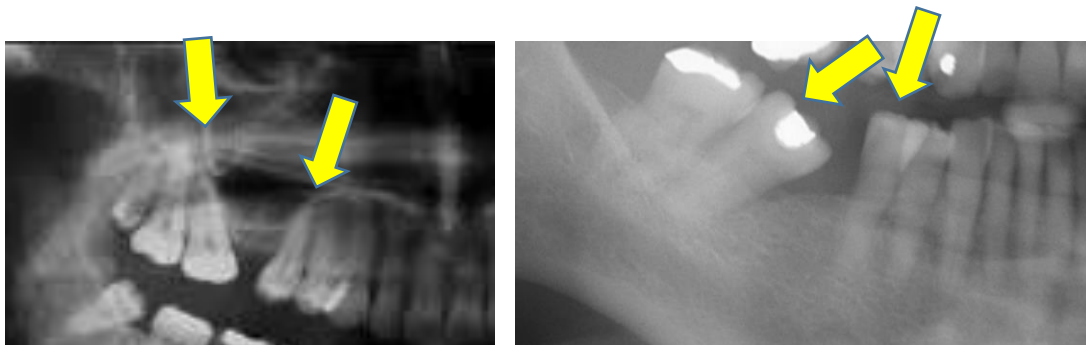
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The image below shows the exposed pulp of a tooth which has been excessively drilled while preparing it for a porcelain crown.



As the pulp is very large in younger teeth there is a real risk of this complication. However, this presents a much lower risk for mature adult teeth as the pulp generally recedes from the surface with age. If teeth are tilted and require excessive reduction to achieve parallelism, the risk of pulpal damage increases. Accordingly, if the abutment teeth are not completely vertical the excessive reshaping will potentially result in exposure and permanent damage to the pulp.



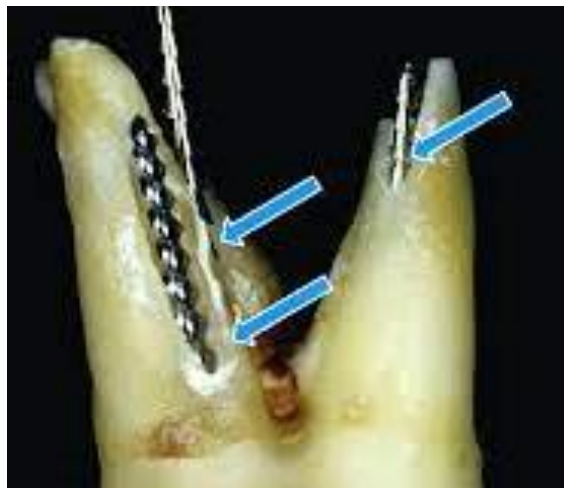
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This complication may arise virtually instantly while shaping the abutments or may occur as the pulp dies many years after the bridge has been in service. If the bridge has been permanently cemented prior to this problem becoming obvious, root canal therapy is made difficult as the dentist has to drill through the bridge in order to locate and treat the offending pulp. The openings to such root canals are often extremely narrow and difficult to locate at the best of times, let alone when covered by a porcelain tooth! Because of that factor, many dentists will refer to an endodontic specialist to maximise the potential for a successful outcome.

Drilling through the outer layer of a porcelain crown is simple. However, drilling through the metal frame of the crown that covers the offending abutment tooth is difficult but nowhere near the level of difficulty associated with drilling through the extremely hard all-porcelain zirconium frame of some bridges. Regrettably, at times, complications can arise while attempting to locate the openings to the root canals, leading to perforation of the root(s) and further infection. This could result in the need to extract the abutment tooth and loss of the bridge!



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The first image above shows a diagrammatic representation of a perforation through the front of the tooth while the second image shows actual perforations on three sites in a molar which has had to be extracted. This is not common, but is a distinct risk when having root canal therapy through complex bridgework, especially by young inexperienced dentists.

At other times, due to the need for extensive excavation required to locate the openings of the root canals within the centre of the abutment, the structure becomes too weak to support the bridge, resulting in loosening and dislodgement, leaving just the root stumps, as in the images below.



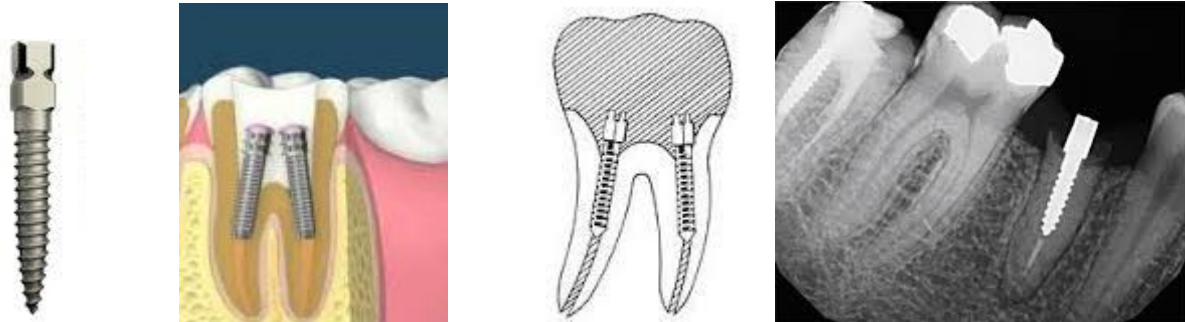
To prevent this complication and allow the abutment to continue supporting the bridge, dentists place posts within roots to strengthen the core. Posts can be parallel sided or tapered and made of various materials, usually stainless steel, cast gold or glass fibre-reinforced composite. The channel is firstly drilled to precise dimensions both in length and diameter before a suitably sized post is cemented into place with an inert bio-compatible cement. The surrounding space is then built up with a strong foundational dental filling

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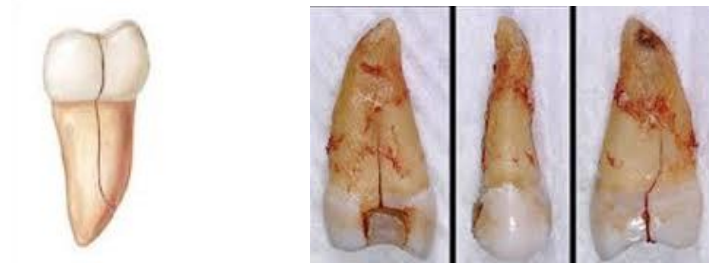
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material such as amalgam or composite resin to act as the core for the abutment.



Although this works well, posts in root-treated teeth (which become dry and brittle over time) can lead to vertical root fracture and infection within the jaw bones. Such infection can present in the mouth as a localised swelling of the gum, a point of discharge around a root and sometimes, with a portion of the fractured root being displaced from under the edge of the crowned tooth. In each case, such abutments become unsalvageable, as in the images below which clearly show deep midline cracks which lead to extraction.



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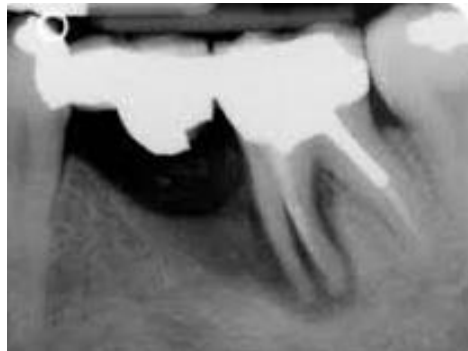
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Here are some further images showing the vertical fracture in an abutment root with part of a bridge still attached as well as a split root exposing a steel post in the centre



...and an X-ray of the infection in the bone (dark area) around a split root.



Furthermore, over many years the gumline of abutments can become exposed due to recession which can lead to decay underneath the bridge, resulting in potential loss of one or both teeth, as seen in the following images!

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This of course, will result in an even bigger gap as more teeth are lost! Insurance company statistics show that the average lifespan of bridges is under 10 years! That's not very good, is it? To avoid such problems, if you currently have a bridge or if you are planning on having a bridge, please take care of it.

Proper diet and correct brushing techniques, which your dentist should show you, are mandatory. The use of floss threaders is of major benefit as brushing cannot clean under the bridge or the sides of abutment teeth. If the gaps between the abutment and pontic are wide enough, the use of interproximal brushes is recommended. Many patients also use a Water-Pik to irrigate under their bridges and find that it often removes more debris than the floss and interproximal brushes combined!

The images below show an example of floss threaders, interproximal brushes and a Water-Pik.

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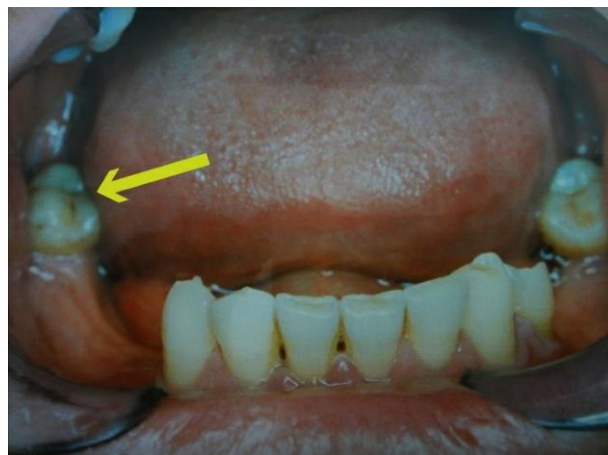
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For the reasons given above which diminish the life of bridges, they are no longer considered an optimal option, especially as implant replacement of missing teeth has very high success rates without the risk of damage to natural teeth.

In addition, the greatest limitation of bridges is of course, the size of the gap between adjacent teeth. If the gap is too long, a bridge is not possible. Let's say for example, that there are four missing teeth and only one tooth at the back to support the bridge, as in the image below.



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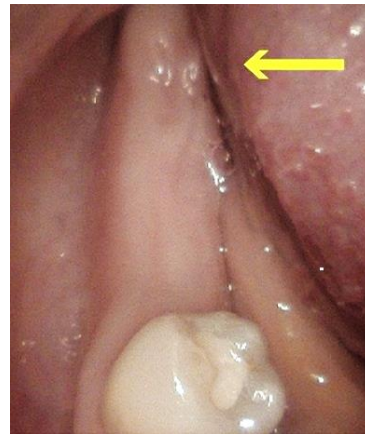
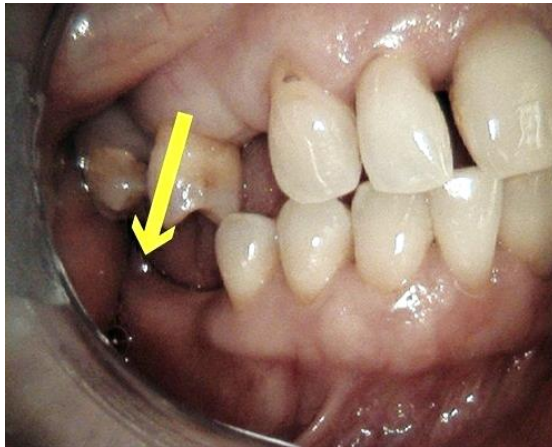
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Given that we need one tooth on either side to support the four missing teeth, the additional load that would be transferred from the 4 new teeth carried by just 2 abutments would result in overload, leading to loosening and early loss of those foundations. The principle by which bridges are designed is that each natural tooth should carry no more than the load of two teeth.

Of course, if the roots of the abutments are short or exhibit some instability to start with, that bridge can be expected to fail even more rapidly.

Taking this concept one step further, if there is no back tooth to support a bridge, this “free-end saddle” becomes impossible to restore with a bridge, simply because there is nothing to attach it to on one end.



These images clearly show that there are a large number of missing teeth and there are no supports at the back that can effectively carry the bridge.

Obviously, a bridge is not possible in such cases and in the past, removable partial dentures were the only solution.....and many dentists are still only offering this as the solution to this problem!

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However, if you are unable to wear a partial denture because:

- it makes you gag or
- it affects your speech or
- it is uncomfortable to chew with or
- if you simply do not want to wear something removable
..... your only option is to have implants!

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Implants

In 1979, as a new graduate, I was faced with the first of many difficult clinical situations. It was a problem that was presented to me by a patient who had only three remaining teeth on her upper right side and who wanted a non-removable replacement of the four missing back teeth. As we have already learned, a free-end saddle is usually only treatable with a removable partial denture but she wanted ANYTHING other than that! Unfortunately I did not have a satisfactory solution for her in those days as implants were not a part of normal dental practice and there were no lectures or training given to dentists by the Universities.



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I soon found out that my undergraduate dental studies had not provided me with the knowledge to solve ALL of the clinical problems that I would be facing in the real world! In fact, dentistry in general, did not have ALL the answers for many clinical problems at that time!

You will agree that the solution back in those days would have been very unsatisfactory because the partial denture I would need to create would have had to be retained by an unsightly visible metal clasp on her canine! That is a very frustrating position to be in as a patient and as a dentist! Not only is it our responsibility to recreate proper chewing function for our patients but to also optimise the cosmetic outcome of our treatments and an unsightly metal clasp on the canine would have definitely been cosmetically undesirable!

Over the following few years I faced this same dilemma a number of times with patients who wanted non-removable teeth but had no back teeth to which a bridge could be attached. A partial denture was the ONLY solution, and for most patients, a disappointing solution at that.

When the opportunity arose in 1984 to attend a four-day training by two of America's most well-known and respected implant dentists, Dr. Kenneth Judy and Dr. Carl Misch, I jumped at the chance to find out what methods *they* were using to help *their* patients. After attending my first implant training I followed up with extensive study as well as attending additional courses, and around a year later, I started placing implants in these free-end saddles and connecting non-removable porcelain bridges to them, much to my patients' delight!

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As their dentist, nothing could have been more satisfying for me than to finally have an excellent solution to a problem for which I had previously not had an acceptable answer!

My passion for solutions with implant dentistry had been ignited!

Take a look at this particular case.



As mentioned in an earlier chapter, this patient had nine missing teeth in her upper jaw with only a few remaining teeth on the left side. Needless to say, a bridge would not be possible without implants but not all implants are the same, and not every patient is suitable for implants! Some have medical conditions which make implants risky and others have lost so much bone

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structure in their jaws that the ridges are too narrow for conventional surgically-placed implants.

However, narrow ridges are often treated with bone grafts from other donor sites in the mouth, requiring multiple surgical procedures to widen them sufficiently to allow for the placement of wide-diameter implants. The added complexity, surgical trauma, extended healing period and greatly increased cost often makes implants an option that is too unrealistic for many of these patients. At the time of writing this book, patients in Sydney are being quoted around \$10,000 for the replacement of just ONE tooth if bone grafts are required!

As you continue reading this book, we shall resolve each of these concerns and come up with workable solutions that can help the vast majority of patients seeking non-removable replacements for their missing teeth, WITHOUT SURGERY and WITHOUT BONE GRAFTS, even if the ridges are very narrow and even if they have serious medical conditions that would make conventional implant surgery too risky!

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Non-Removable Crowns and Bridges On Implants

Since the mid 1980's, dentists have used surgically-placed implants which are wide-diameter hollow titanium screws comprised of two precisely engineered components. The diameter of such implants can range from 3.5mms – 6.5mms.



The channels which are drilled into the jawbones for implants are called “osteotomies”. They are prepared using a series of drills, starting with a very narrow diameter and ending with one that closely approximates the diameter of the implant to be inserted into the osteotomy.



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Following a four to six month healing period, the second component, which is called the “abutment” is precisely fitted into a lock (sometimes triangular, sometimes hexagonal) within the entry to the implant and connected by a screw that runs through both parts.



The final single crown or bridge is attached by dental cement (as in the first image below) or by screws that run through the crown(s) into the abutment(s).



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Here is a diagrammatic representation of the process.

1. Upon removal of a tooth and an appropriate period of healing, the osteotomy is prepared for insertion of a titanium implant
2. Upon insertion the gum is stitched over the top and the implant is left untouched for up to a further 6 month period
3. The gum is then re-opened to screw the abutment into the implant
4. The porcelain crown is then fabricated and attached to the abutment



For patients who decide to have these conventional implants, this is what should be expected:

As in the diagrams above, to place these implants the jawbone must be exposed by cutting the gums open and peeling them off the proposed implant site not a nice thought! Using a series of drills of increasing size, as we have already seen, the healthy bone structure of the jaw is removed to accommodate the exact length and diameter of the implant which must be screwed into the bone to gain primary fixation. If the osteotomy is not precisely prepared, the implant cannot be screwed into the side walls to gain a firm connection and any micro-movement will result in rejection and failure.

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Accordingly, the implant dentist must carefully assess the degree of resistance when placing the implant and if insufficient, must discard it and insert one of wider diameter than originally intended a costly exercise!



Once complete, the gum must be stitched back to its original position and the implant left undisturbed. As already mentioned, the healing phase following this procedure is between four to six months before a final porcelain tooth can be connected.



But in order to do so, the gum must be re-opened (to a lesser degree than the initial surgery) to find the top of the implant for the abutment to be screwed into position.

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However, in order to obtain the perfect connection between the implant and abutment, the surgical site is opened, the implants uncovered and “healing caps” screwed into the opening to allow the gums to heal again for a further few weeks before the final abutments are connected.



Once the healing caps are removed the space for the abutments is ready, surrounded by healthy pink gum collars, as in the images below.



These abutments can be made of either titanium, ceramic or gold depending on the preference of the dentist and the aesthetic requirements of the area being restored, notably the upper front teeth.

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Upon final connection of the abutment to the implant an impression is taken and a few weeks later, the permanent porcelain crown is attached. In the meantime, a temporary crown is created to cover the abutment and to provide a reasonable level of aesthetics and chewing function.



From the image below, one can see that the componentry is complex. This type of implant is precisely engineered with multiple structures which need to fit into each other perfectly without leaving gaps which could harbour bacteria and lead to infection and eventual failure. Accordingly, by most standards, they are considered to be quite costly.

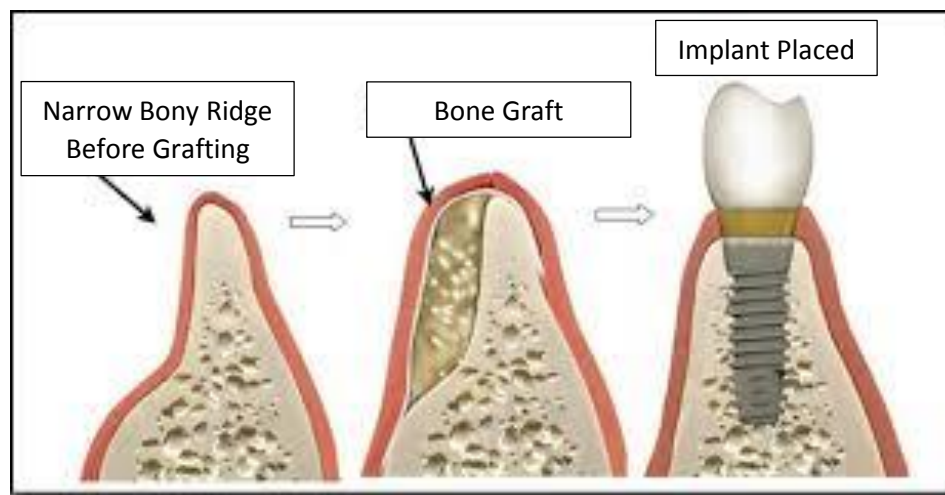
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As already mentioned, current fees can exceed \$10,000 per tooth depending on various factors, the most important of which is whether surgical bone grafting is required before the implant can be placed. In contrast, keyhole mini implant techniques do not require multiple episodes of surgery, use simpler componentry and do not require bone grafts where the bone may have lost substantial width. So before we look further into the benefits of these conservative implant techniques, let's discuss bone grafting.



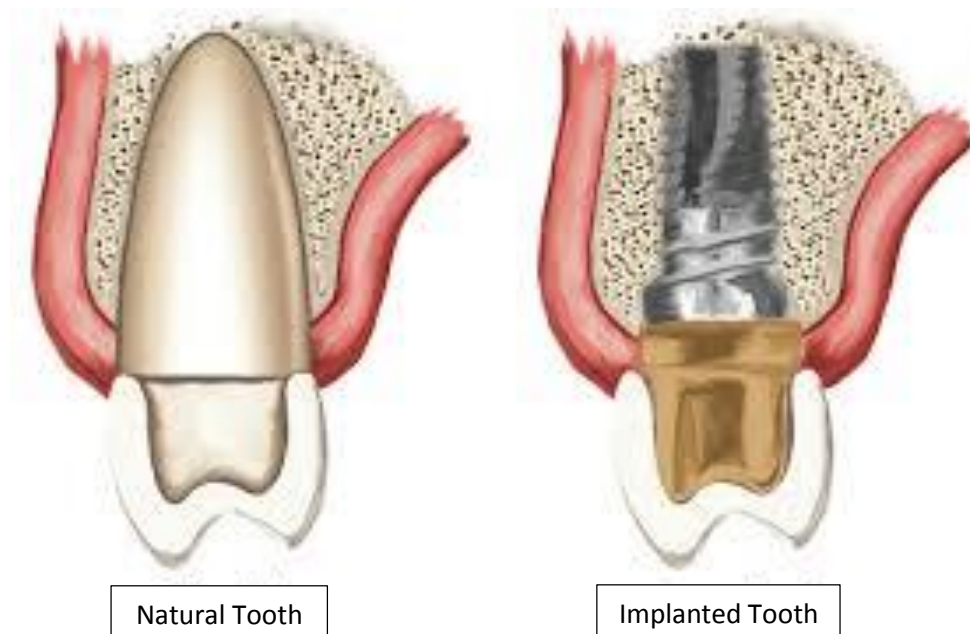
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The cross-sectional diagram above shows how, following extractions, narrow ridges need to be widened by grafting if the implant dentist only uses wide-diameter surgically-placed conventional implants. As already mentioned, a period of healing lasting around 6 months is required after bone is grafted and before implant placement can be considered and a further 6 months is required for complete integration of the titanium and the jawbone before an abutment can be connected. As a result, the total time from extraction to completion of the tooth replacement process is around a full year!

The final result therefore mimics nature as closely as possible by creating a replacement for the natural root in the form of an “implanted” root and replacement of the natural crown with an artificial porcelain crown. In the diagram below the comparison is quite obvious as the two parts of each tooth are clearly identified: a foundational structure within the jawbone (root or implant) which carries the visible part of the tooth (the crown).



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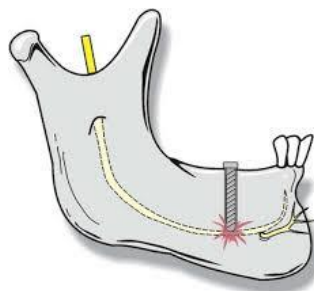
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Because of the complexity of conventional implants, mentioned so far, and the excellent results that can be achieved with our more conservative keyhole methods to place narrow diameter “mini” implants, I am convinced that there is really no need in this day and age to put patients through this suffering nor the time delay before completing the treatment nor the excessive cost associated with these traditional implants.

Furthermore, as mentioned above, the osteotomy is around 4-6mms in diameter and up to 18mms in depth. If it is not drilled precisely to the right dimensions, an initial firm fit for your implant cannot be achieved, allowing a degree of micro-movement and resultant failure because the bone will not fuse with the titanium. Precision in preparing the osteotomy site to gain firm fixation of the implant is therefore essential to allow the bone to grow onto the titanium surface during the healing period if osseointegration is to be achieved.

There's one other very important issue to consider. Drilling deep into the lower jaw has its risks because underneath the area which is to carry the implants is a channel which carries blood vessels and the main nerve that supplies sensation to your lip, structures collectively called the “mandibular neurovascular bundle”. If damaged by drilling too deeply you could lose sensation to your lip temporarily or even permanently!



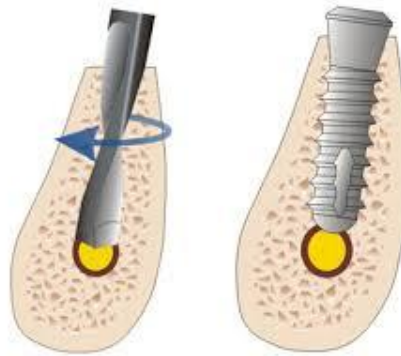
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The images below show:

1. A cross-section depicting the drill penetrating the top of the neurovascular channel (called the inferior alveolar canal) and the implant embedded slightly too far, compressing the roof of the channel.



This would result in a burning sensation or prolonged numbness of the lip on that side. Considering that the local anaesthetic for the procedure would normally wear off within 4-8 hours, in such situations, a prolonged numbness of the lip would be reason for concern. Fortunately, removal of the implant or use of a shorter one will eliminate the symptoms, resulting in the return of normal sensations, sometimes instantly or within a short period of time. That is of course, provided that the drill hasn't actually severed the nerve!

Any prolonged impairment (greater than 8 hours from the start of the procedure) needs to be immediately brought to the attention of the practitioner who performed the operation so that urgent action may be taken to rectify the situation.

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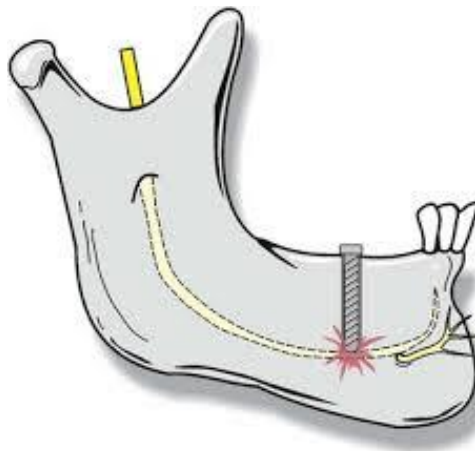
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2. The X-ray shows three implants carrying a four-tooth bridge. The red arrow is pointing to the last implant and its close relationship to the roof of the channel. Provided that the drill has not gone beyond this point, there should be no lingering change to the normal sensations in the lip.



3. The final image below shows a diagram of the mandible (lower jaw) and the route of the mandibular nerve before entering the channel, its course within the channel and its exit point where the branches enter the lip to provide feeling. All implants need to ideally end at least 1mm from the top or roof of this channel to avoid ANY risk of adverse effects.



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So it's very important that when the implant site is being prepared, the drilling is performed with perfect accuracy to avoid this complication. This is a key element of concern in the use of surgical implants but keyhole mini dental implants completely avoid this potential risk because the depth of the channel is never more than 80% of the length of the intended implant. This allows for a safety margin of at least 4mms from the nerve!

Let me stress this point which is of major importance. There is a far greater safety margin when having a keyhole mini implant procedure performed than a conventional surgical procedure, simply because there is no need to drill a full depth osteotomy. That is why these techniques are described with terms such as “keyhole”, “minimally invasive” or “conservative” terms that are used by patients who have undergone these procedures when describing their own experiences.

For this one reason alone, I would prefer to avoid any family member, friend and therefore, any of my patients, to undergo the surgery required for the placement of conventional wide-diameter implants.

You need to also know that all implants are subject to a condition known as “peri-implantitis” which results in the loss of connection between the implant and the bone, a loss of osseointegration. The result is a loose implant which must be removed if large areas of bone destruction is to be avoided.

There may be a variety of macro and micro reasons for such failure. The profession does not have all the answers to why implants fail but here are a few obvious ones.

The first reason for this complication is that conventional hollow implants are subject to microcracks around the narrow rim. Some may be visible on x-ray films while some may not, as in the case of natural teeth also. Sometimes, fracture along the shaft can occur, leading to bacterial infection and loss of the supporting bone surrounding the implants. It may take years for this to lead to a completely loose implant, but once osseointegration has been lost through this process, the implant and the crown or bridge it carries must be removed.

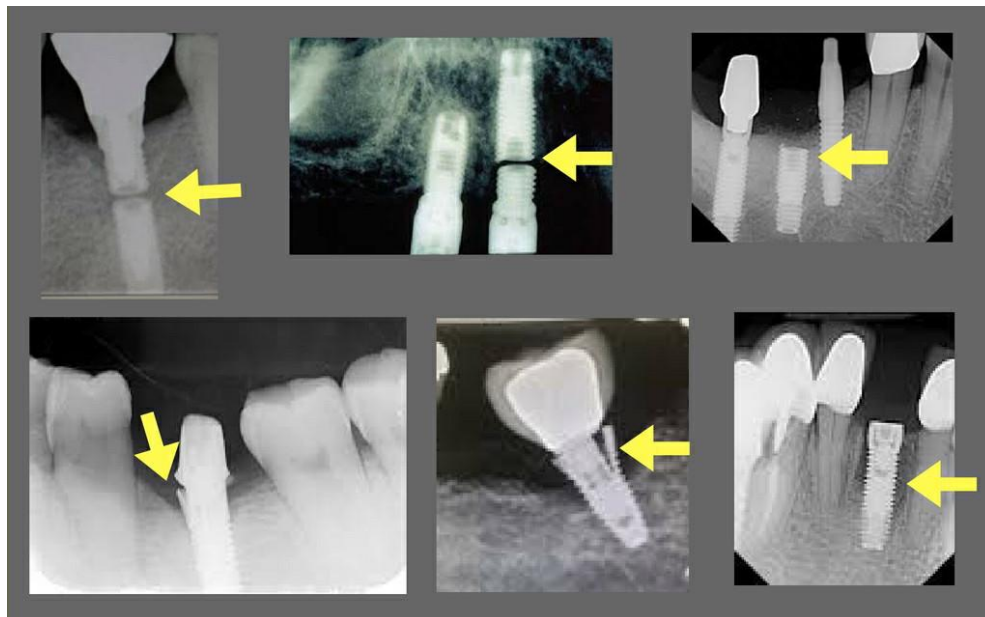
The resulting bony defect due to peri-implantitis is usually quite large around conventional wide-diameter implants but far less for narrow mini implants. Either way, such defects require regeneration if they are to become useful sites where another implant can be placed. In the case of the larger implants, grafting and placement of a second implant requires an additional 12 months to complete the treatment, whereas natural healing for a period of 6 months is all that is needed in the case of the narrower keyhole variety.

It is worth noting here that unfortunately, a second attempt at implant placement using surgically-placed conventional implants has been found to be more prone to failure than the original. This is one more factor in favour of the more conservative keyhole mini implant technique as regeneration with natural bone, rather than artificial, allows for more successful osseointegration if a second attempt is made to secure an implant.

Considering the possibility of a second failure if undergoing a second surgical procedure, patients often decide on another option such as a bridge retained by natural teeth, or if that is not possible, a removable partial denture.

However, the option for a more conservative keyhole implant procedure can save such patients from being condemned to the problems already described in earlier chapters if these options are chosen.

The images below identify fractured implants in the top row, two images of cracked implant rims in the second row and an image showing large dark areas of bone loss surrounding a failing implant as a result of peri-implantitis.



Even if micro-cracks are not present, around 5% of conventional surgically-placed implants fail due to a loss of osseointegration. I have witnessed this in my own patients, sometimes 15 years after placing the implants and with all the research that has been conducted by highly recognised institutions, we do not know what other factors lead to implant failure.

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The worst part of the story is that when such implants fail, due to the wide diameter of the initial osteotomies, there is major loss of bone around them, sometimes adding a further 2-4mms in diameter to the defect in the jaw. Such damage is equivalent to having an extraction of a large tooth, requiring a lengthy period of healing before attempting an implant again. The first image below shows the extent of such bone loss at the back of a failing implant while the X-ray image shows horizontal loss of nearly 80% of the bone that originally surrounded these implants, exposing the screw threads nearly to the tip of each implant.



Here is another frustrating problem associated with these implants: do you remember my reference to the screw that connects the abutment to the implant? Here is that image again with the red arrow pointing to the central screw which is inserted through the abutment to connect it with the implant. The abutment fits precisely into the hollow lock within the rim of the implant and the abutment screw firmly connects the two components at least that is the intention!

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Occasionally these screws can loosen and allow a slight wobbling of the porcelain crown. If the crown was retained by an additional screw that connects into the abutment (as in the image below) the crown or bridge can be removed and the offending screw(s) retightened or replaced.



However, as many of these crowns and bridges are actually cemented onto the abutments, there is no way of accessing the offending loose screw without using a drill to section the covering artificial tooth into a few pieces.

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Once the crown or bridge has been destroyed in this manner an entirely new replacement needs to be made! Although this is a rare occurrence, it is something to keep in mind. The image below shows the first stage of the process to drill the loose crown off before gaining access to the loose screw underneath! The drill has penetrated through the external porcelain layer to reveal the underlying metallic thimble and once that has been sectioned through to the abutment level, the screw can be accessed and tightened or replaced. A temporary crown is then attached while awaiting the new crown.



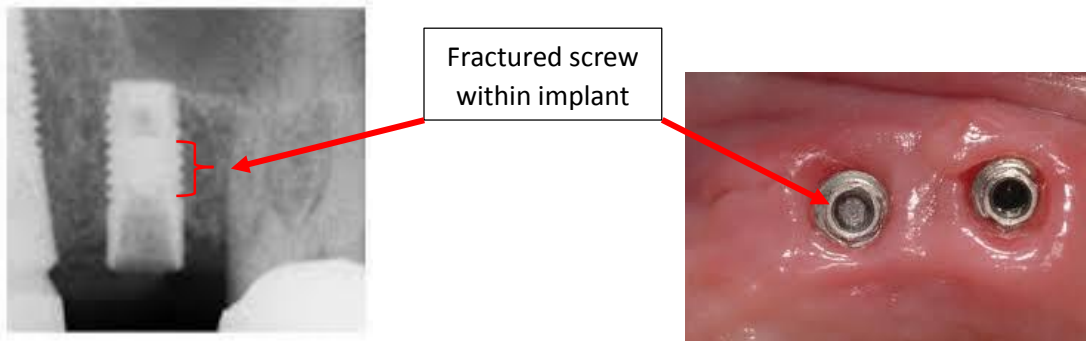
In addition, these connecting screws have been known to fracture within the implant, making the implant itself completely useless unless the broken screw can be retrieved an extremely difficult, if not impossible, task to perform! During the years when I used to only provide these types of implants to my patients, I had reason to retrieve a few of these fractured screws and have no hesitation in admitting that these disappointing events created major technical stress for me as a clinician and emotional stress for my patients. The chewing and grinding forces to which these tiny screws are subjected are beyond the control of the clinician once treatment has been

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completed but when such events arise, it can create major tension between the implant dentist and the patient. That is another reason why I ceased using this technique in the mid 2000's and switched to the less complex option provided by keyhole mini implant dentistry.



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All-On-Four

I live in Sydney and only listen to the radio in my car when I drive for 15-20 minutes to and from my practice on any given day. Depending on which station you may listen to you may have had the same experience that I have virtually every day! I am referring to the multiple advertisements by various dental clinics promoting their “All-On-Four” implant treatments by way of free seminars, free consultations or “private appointments”.

It appears that the competition is intense, judging by statements like:

“Why go to other clinics when you can come to us, the inventors of the technique! Beware of imitations!” or “We are Sydney’s most prolific All-On-Four clinic! Call us for a free consultation and make sure to ask about our All-On-Four finance option designed *just for you!*”

The technique is not new. It was available in the early 1980’s and was refined in the 1990’s. It is basically a complete set of teeth supported by 4 implants, whether it be in the upper jaw and/or the lower jaw. The bridges are supported by screws that connect into the abutments as in the images below.



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The illustration above clearly shows the concept of implants in the jawbone to which parallel abutments are connected by small screws and a set of 12 teeth connected by *even smaller* screws which fit into the abutments.

Although success rates are 90%-95% over a 10 year period, I consider this to be a very complex and aggressive method of helping patients who may be having problems wearing complete dentures or whose teeth may no longer be salvageable. Furthermore, this technique requires the removal of ALL the remaining teeth as it aims to create a complete solution with this one prosthesis! Even worthwhile teeth need to be extracted! In building terms, a complete demolition is required before construction begins even if a renovation could have been perfectly satisfactory!

In recent years, as members of the public have been enticed by the offer of “free consultations” or “free X-rays”, I have had reason for concern about the ethics of some dentists who are recommending the All-On-Four technique when a number of such patients have attended my practice for second opinions.

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I congratulate these patients for having had the foresight to look into other options before embarking on such radical treatment because NONE OF THE PATIENTS whom I have met HAVE NEEDED EXTRACTION OF ALL OF THEIR REMAINING TEETH!

I have emphasised this last statement simply because in each case, their concerns were able to be addressed with other conservative treatments such as teeth whitening, gum therapy, veneers or a few keyhole implant-supported crowns inexpensive, conservative solutions that did not require the excessive intervention to which they would have been subjected, had they not sought a second opinion!

A simple search of Google and YouTube not only reveals the extent of the surgery but also various reviews, both positive and negative. My concern is for patients who firstly do not need such invasive treatment and are talked into it, and secondly, for those who experience the complications that can arise from a failed implant or failed prosthesis. Implants fail as we have already seen. Screws can break. Prostheses can fracture Complex treatments such as the All-On-Four can give rise to complications that also require far more complex solutions! For that reason, I cannot recommend this as a good option for my patients, even if they are missing all of their teeth, especially when simpler solutions exist!

I remember as a student back in 1977, having been taught the KISS rule by one of my professors and I have abided by that throughout my clinical career. No doubt you have heard of it, but in case you haven't, KISS stands for "Keep It Simple, Stupid!". Needless to say, I do not consider the practitioners of All-On-Four as "stupid" as it does take great skill to perform

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properly, but I do believe in creating **simple solutions for complex problems** wherever possible. For that reason, Keyhole Mini Implant Dentistry is my treatment of choice if and when legitimately failing teeth need to be replaced.

As you read on I expect that you too will agree that the KISS rule is to be highly respected when it comes to the replacement of missing teeth!

I believe that life is complex enough for most people and the last thing anyone needs is to be subjected to more complexity when it comes to their dental rehabilitation. In reality, by the time a patient has reached the point of needing complicated dental reconstruction they have already spent countless hours in dentists' chairs undergoing all manner of treatments. Initially they would have had multiple fillings, then some root canal treatments, some extractions and eventual breakages of large fillings repaired with crowns and bridges, possibly some infections, more extractions, partial dentures etc. etc. if anyone deserves a simpler solution, its these patients!

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Bone Grafting

With regards the bony ridge, not every tooth can be replaced with a conventional surgical implant, simply because the jawbone rapidly narrows following loss of a tooth, as we have already discussed. Not only do we lose width in the extraction site but height also, as seen in the diagram below. This is even more pronounced if the extraction was performed many years prior or was difficult, resulting in a surgical procedure requiring removal of bone to access the root. In such cases where the bone is too narrow for a conventional implant, the routine recommendation by most dentists is that the patient undergoes a bone graft.



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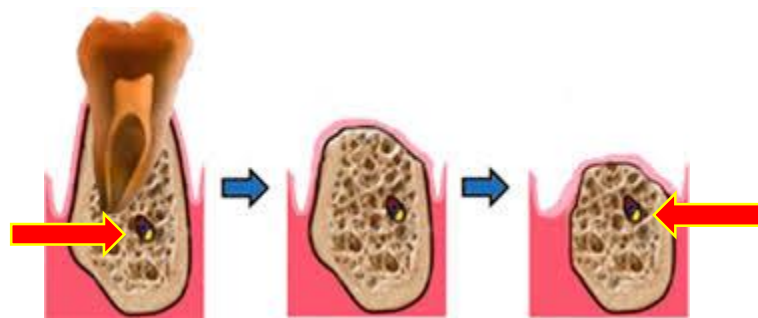
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Let's have a look at some images showing the vast variation in the width of the ridge. The narrow ridge in the first image is completely unsuitable for a conventional implant without extreme bone grafting while the wider ridge is ideal.



The loss of a tooth can not only result in loss of width, but as the image below indicates, loss of height, reducing the possibility of having implants. This is especially true in the back areas of the lower jaw as the loss of bone leaves less and less foundation over the mandibular neurovascular bundle, identified by the red arrow.



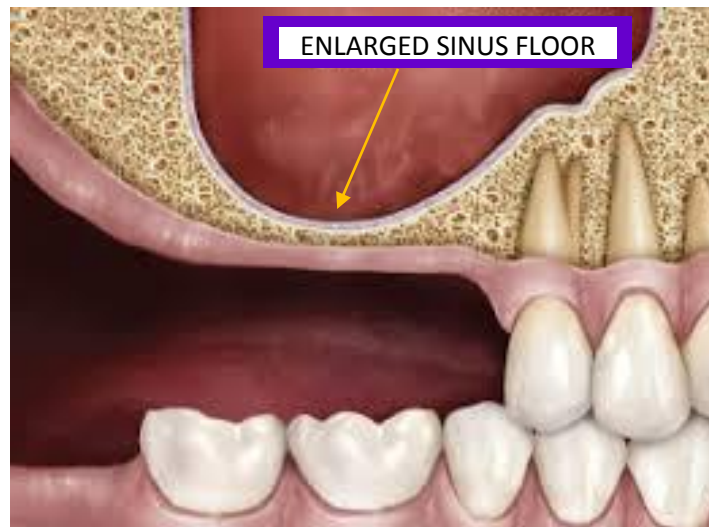
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This is also true of the back regions of the upper jaw where the maxillary sinuses are located. Following extraction of molars, not only will there be loss of the width and height of the jawbone but the sinus floor can descend into spaces previously occupied by the roots of the extracted teeth.

This results in very minimal residual bone into which implants can be placed, often as little as the thickness of an eggshell!



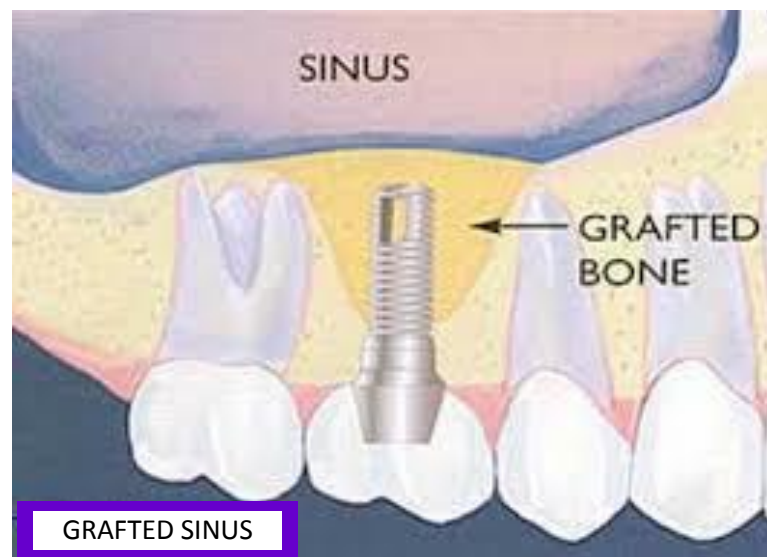
Accordingly, an operation is required to rebuild the lost bone if implants are to be considered. This operation is known as a “sinus lift” and as the name implies, the lining of the sinus floor has to be lifted to allow for bone grafting materials to be placed through a side window that is opened surgically. This is not a simple operation and requires great skill to avoid perforation of the lining and potential complications.

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The sinus graft is allowed to heal and convert to firm bone structure over a 6 month period before further surgery is performed to place the implant(s) as depicted in the diagram below.



Ideal Bone Height Under The Sinus For Implant Placement

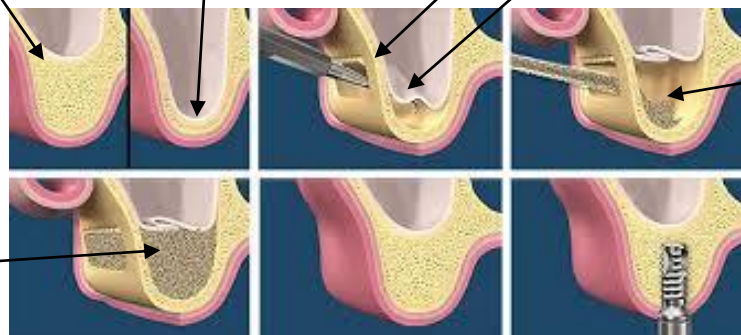
Reduced Bone Height Due To Enlarged Sinus

Surgical Opening Into The Side Wall Of The Sinus (Under The Cheekbone) And Lifting Of Sinus Lining

Placement Of Bone Grafting Material Under Lifted Lining Of Sinus

Bone Grafting Completed Ready For Gum To Be Stitched Back Over Sinus Access Window

Implant Placed Into Regenerated Bone Under The Sinus



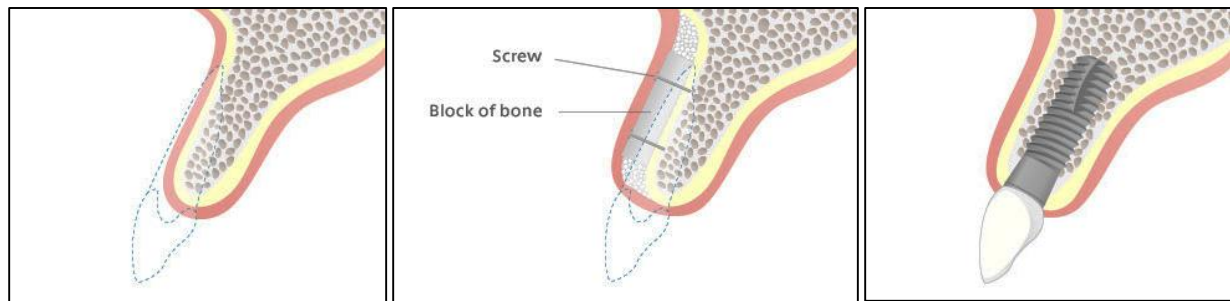
Regenerated Bone Height Under Sinus After 6 Months Of Healing Ideal For Implant Placement

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The following are cross-sectional diagrams of a front tooth in the upper jaw. When the tooth is extracted the bone starts to shrink over a period of six months, reshaping and resorbing, ending up with a narrower bony ridge. That narrow bone structure cannot accommodate wide diameter implants without a block of bone being grafted from another site.



Accordingly, in order to create a wide foundation for these implants a donor site is chosen from which to take the required amount of bone. This is usually the chin or the back of the lower jaw or sometimes the rib or even the hip, a rather undesirable surgical procedure as we shall see shortly! Remember that this is required simply because the diameter of conventional hollow two-stage implants is too great for the width of the jaw at that point. Narrower keyhole mini implants which are solid, avoid the need for grafts, as you will soon find out!

In essence, the dimensions of a narrow ridge do not fit the requirements of conventional surgically-placed implants. Therefore, rather than use a narrower solid implant, many dentists recommend bone grafts simply because they are not aware or refuse to accept the benefits of the simpler narrow-diameter keyhole mini implant techniques. Many are just set in their

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ways, refusing to learn about alternatives, or even if they have attended seminars and trainings, still do not have the faith to offer them to their patients!

This of course, means that patients end up with two surgical sites the site from which the bone is taken and the site to which the bone is grafted.

In my first 25 years as an implant dentist I performed only conventional implants and now, with over a decade of experience with the minimally invasive option, I am convinced that 99.9% of the time, there is no need to put patients through the pain, suffering and costs associated with traditional or conventional implant procedures any longer, especially when grafts are required.

The image below shows a surgically opened donor site in the chin from which the bone graft is taken. You can see the large area that needs to be exposed in order to remove the graft. A window of bone is cut out and that section is then positioned in the surgical site, which is called the “receptor” site.

I am sure that you will agree that it would be terrible to have to undergo such an invasive procedure! And not just in one site but **in two sites**! This is required in order to remove the required amount of bone from the chin and to then screw it into the existing narrow ridge where the implant is to be placed. It then needs to be left undisturbed for six months to heal and become part of the underlying structure before placing the implants and then building a new tooth. Rather dramatic don't you agree?

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I really don't like the idea of having that sort of thing done to me nor to my family and I don't recommend that you go through that either! As already mentioned, a non-surgical narrow-diameter keyhole implant does the job just as well! With more than a decade of successful outcomes replacing missing teeth without grafting narrow ridges for my patients, I cannot and **will not** recommend such treatments!

So let's recap. A conventional implant requires surgery, cutting and stitching of the gums. It requires the removal of healthy bone using a series of drills to create a channel measuring on average around 4 to 6 millimetres in diameter and up to 18 millimetres in depth to accommodate the implant. It requires up to six months of healing, requires complex componentry, often requires additional bone grafts and the fee can be over \$10,000 per tooth if bone grafts are required.

Alternatively, the keyhole mini implant technique does not require surgery and is therefore minimally invasive. We only drill a 1-2 millimetre diameter penetration through the gum and the bony ridge to a depth that ranges from 20% to 80% of the desired implant length, as determined by the varying density of the bone in each area of the mouth. This means that the drilling

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process CANNOT cause harm to the mandibular neurovascular bundle nor to the sinuses because the drilling process **never** penetrates to the full depth of the implant.

Furthermore, the prepared site is around 1mm narrower than the implant selected for that site, therefore allowing expansion of the bone during insertion. This provides for an immediate firm connection with the jawbone and allows the creation of temporary teeth at the first visit rather than having to wait 6 months! The componentry is much simpler as the implants are solid one-piece structures measuring 2 to 3.5mm in diameter, allowing for placement without bone grafts and with the same rates of long-term success!



All of these factors lead to a far less painful and far less costly experience than if you were to have conventional surgical implants, with or without grafts. So accordingly let's say “goodbye” to that technique and let's talk in detail about **Keyhole Implant Dentistry**.

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What IS Keyhole Implant Dentistry?

Modern advancements in medicine have brought about the term “keyhole” to describe minimally invasive surgical procedures which eliminate the need for large incisions to access the deeper structures, eg in the abdomen. In the same manner, this term is applied in implant dentistry to differentiate the conservative procedure, detailed below, from the invasive option which requires an incision and the raising of a soft tissue “flap” to access the jawbones. Furthermore, it also refers to the minimal interference with the bone prior to placing the implant in comparison to the complete excavation and removal of large amounts of healthy bone to full depth and full width to create hollow channels to house implants.

Let’s look at this procedure in detail.

The image below shows a tiny entry point through the gum measuring as little as 1.1mm in diameter and to a depth of 3-11mms. That is all we need! Just a tiny little channel into which we can place the pointy tip of our implant and as it is inserted into the gum, the bone structure actually expands, eliminating the need for the removal of healthy bone.

For a 2mm diameter implant the required measures just 1.1mm in diameter.

For a 2.5mm diameter implant the channel measures 1.6mm while for a 3mm implant it measures 2.1mms.

The widest implant is a 3.5mm which requires a channel measuring 2.9mms.

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From the image below which shows the largest (2.9mm) channel you can appreciate the conservative and minimally invasive nature of this procedure.



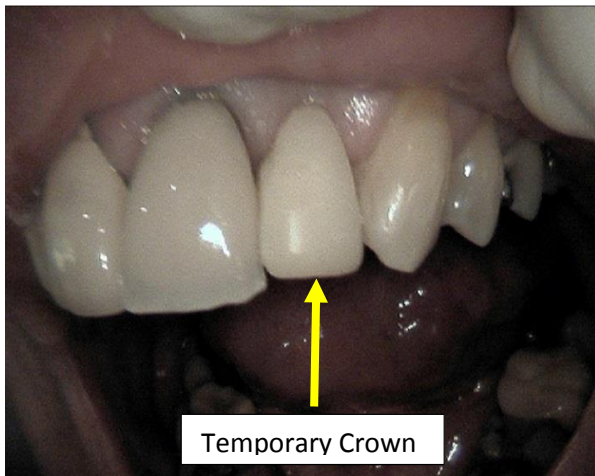
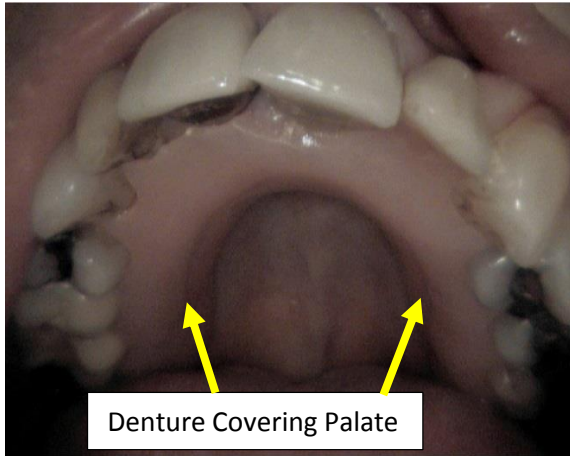
Once the implant has been placed within the jaw, it provides firm fixation onto which an acrylic temporary tooth can be connected at the same visit. This ability to provide patients with an immediate non-removable replacement for a missing tooth is a unique feature only available with this technique. It is ideal for patients who wear partial dentures for single teeth as in one short visit they can be rid of their denture and return home with a tooth that is firm and able to function as though it has always been there!

The images below are of a patient who was wearing such a removable acrylic partial denture which occupied a large area of his palate. Insertion of the implant and creation of the temporary tooth was a non-traumatic procedure followed by replacement with the permanent porcelain crown very soon after.

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These temporary replacements are made during the implant placement appointment so that the implant and surrounding gum can be protected while awaiting fabrication of the final crown or bridge. Understandably, aesthetics is of great importance if a front tooth is being replaced but of lesser importance for back teeth. For molars on multiple implants the temporary structure is created simply as a flat plane with smooth rounded sides to act as a splint that lessens the impact of chewing forces and avoids irritation to the patients' tongue while awaiting the permanent replacement.



The visible part of the implant is only about a third of the actual length which measure between 6-14mms, similar to the image below.

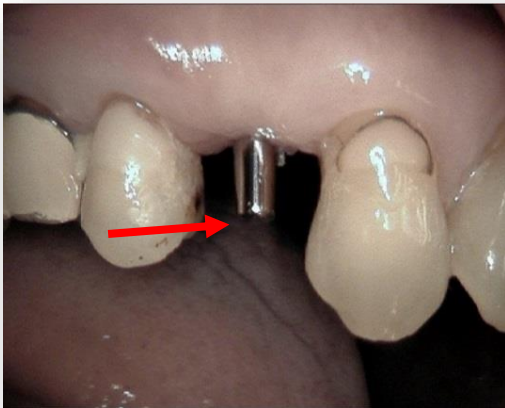


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At times, if the space between the upper and lower teeth is insufficient to allow for the full length of the visible section of the implant, the top must be adjusted by reducing it by a few millimetres to allow for the thickness of the crown. The two images below show one such implant which has had to be adjusted after insertion, followed by the final porcelain crown to create a natural-looking premolar tooth.



Whether you personally have a missing tooth or need to offer advice to a close friend or family member, the knowledge you have already gained by reading this far will give you certainty about the most conservative solution currently available for this problem.

Here is an interesting question for you!

As you have already found out, single missing teeth can be replaced with a removable denture, a bridge or two different types of implant procedures: one that requires surgery and often a bone graft, the other a keyhole approach. Now that you know about these options, let me ask you, which option would you prefer?

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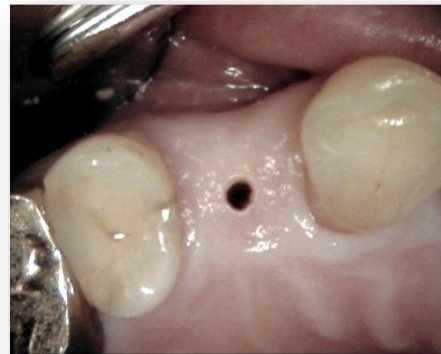
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I am 100% certain that you would choose NOT to have natural teeth permanently damaged for a bridge just for the sake of replacing one tooth. I am also certain that you would not like a removable denture, knowing that an implant is potentially able to replace that missing tooth.

But which type of implant would you prefer?

Given that the success rates are the same, would you prefer the invasive surgery depicted in the first image below or the keyhole method in the second?



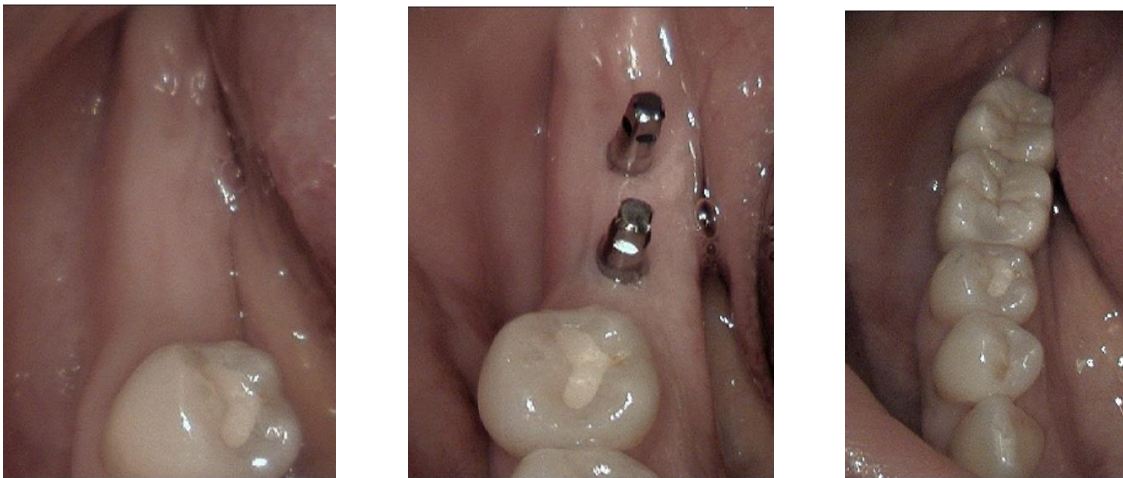
By now you know exactly what my preference is for patients seeking my services! For me, every patient needs to be treated as though they are family. If it's a procedure that I would not perform for my wife or my family, it's a procedure I would NOT perform for my patients! Having said that, over the years I have provided these keyhole implant services for my father, aunty and uncle, mother-in-law and father-in-law as well as senior clergy at my church and even members of local government! I mention this to give you confidence in the fact that I have every confidence in these procedures which are definitely to be preferred over the traumatic surgical alternatives!

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To take this concept further, the images below show two implants in a narrow free-end saddle where there's no tooth at the back, eliminating the possibility of a bridge. The narrowness of the ridge would also not allow for conventional implants without grafting. Instead, these narrow-diameter implants allow us to avoid bone graft surgery and are sufficient to successfully carry the two porcelain teeth.



There are no incisions, no bleeding, no stitches and the permanent teeth are attached just **TWO WEEKS LATER.**

Because the ridge is narrow, the alternative to placing these two keyhole implants would be an initial bone graft from the chin (that's already two sites where the gum must be cut open), followed six months later by the third surgical procedure to create the osteotomies (image below), followed six months later with the surgery to place the healing caps, then the abutments, before completing the treatment with two crowns

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total duration of treatment: **12 months** (provided there are no surgical complications)!



In contrast, it only takes about two to three hours in total to create the same result using keyhole mini implants. Not only is treatment more streamlined but it is virtually painless because the bone actually does not feel any pain. It is only the soft tissues, the gum, which feels the pain and considering that the keyhole procedure creates only a small opening compared to that which is required of the alternative surgical approach, there is a vast difference in pain levels. The complexity of grafts with the risk of failure and complications, the surgery required for implant placement, the healing periods between each stage, the months of delay before getting the permanent result, the risk of implant components failing, not to mention the high cost, make this a vintage technique when compared to the streamlined modern Keyhole methods I recommend to my patients and the dentists who attend my seminars.

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As you can see, this is so much better than what we used to do in the past and unfortunately, only a small percentage of dentists are currently providing their patients with this proven, conservative tooth replacement option!

An international authority, Dr. Gordon Christensen from the United States, wrote the following statement in a paper a number of years ago in regards to “mini implants”:

“Root form implants have been the most important innovation in dentistry since the air rotor nearly 50 years ago. Millions of people globally have need of retention and support for removable prostheses, crowns, or fixed prostheses. However, many of them do not have adequate bone quantity in which to place root form implants 3mm or over in diameter, and, for financial or health reasons, they cannot have bone grafting. Small diameter “mini” dental implants serve these patients. Small implants, ranging from 1.8mm to 2.9mm in diameter, have now proven themselves capable of supporting complete dentures, removable partial dentures, fixed prostheses”

In another article he recently wrote:

“more patients have been served successfully at reduced cost with minimized pain and trauma, patients who could not have been treated with implants otherwise”.

He is acknowledging that often patients are unable to have conventional implants due to various factors such as affordability or they may not be medically suitable, especially if more complex treatments are required.

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Accordingly, they have been given dentures or bridges which are not as ideal as having these keyhole mini implants. However, this technique is broadening the possibilities of successful treatment outcomes for all of these patients. Although it may still be unaffordable for some, at least it is available to help many more patients than was possible in the past.

An analysis of over 5,500 implants over an 11 year period was carried out in 2012 by Dr. Todd Shatkin from Buffalo, New York and his results show that for non-removable teeth supported by these non-surgical keyhole mini implants in the upper or lower jaws, success rates exceeded 95%.

I have personally found this to be the case also. Over 95% of the 6,500 implants I have placed and restored with crowns and bridges between 2003 and 2017 are still fully functional, giving my patients a wonderful improved quality of life, free from the need to wear removable false teeth. That statistic is superb. Even dental fillings don't have such a high success rate!

The following is the narrative from a video testimonial from one of my patients about his experience having had *surgical implants* placed previously and years later having had the simpler *keyhole implant* procedure performed. The actual video is available for you to view, by going to my website at www.KeyholeImplantDentistry.com.au and entering your name and email address at the bottom of the page as in the screenshot below. Once you click on the blue button and enter your details you will be granted access to various clinical videos as well as a few where patients share their experiences. Those videos are intentionally not placed on the front end of the website because the private information they have provided is expressly meant ONLY for the benefit of those patients who are serious about

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proceeding with treatments, not as general entertainment for anyone and everyone to view!

INFORMATIVE VIDEO SERIES

These two videos are short and easy to watch. They describe actual clinical treatments I have performed for patients. but don't be worried, there are no graphic images!

The first one shows the replacement of a single missing tooth while the second shows the replacement of multiple lower back teeth.

If you would like to watch a few more, simply click the blue button below to provide your name and email address to gain immediate access.



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Here is his narrative:

“I just had my second implant. Now what's interesting about this is that last time I was in a lot of pain, a lot of anguish for the whole thing but this time, it was a situation where I came in I was taken care of, everything was fantastic. And next thing I remember was waking up at home. But more importantly with this implant there was absolutely no pain at any point in time, not even a discomfort when I got home, so it was absolutely fantastic. I've just had the tooth placed in. I'm really happy. Believe me, for a guy who's absolutely panicking about coming to a dentist, this was a great experience.”

You may have thought it odd that he stated “And next thing I remember was waking up at home.” He was so fearful from the experience he had had with the previous surgically-placed wide-diameter implant that he wanted to be sedated for this keyhole implant, even though I had reassured him that this would be a far better experience!

The testimonials that follow in the following pages are all narratives from patients who simply had their implants placed under local anaesthesia, which is all that is required for this treatment. The chapter that follows will discuss some of the most common examples of tooth replacement for which patients attend, followed by a narrative from a video testimonial provided by a patient who has had that particular treatment.

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Common Tooth Replacement Examples

Let's now look at a few examples of the type of treatments that are very commonly required by patients with missing teeth.

1. Replacing A Single Front Tooth:

As I have mentioned a number of times so far, the preferred option to replace a front tooth which ordinarily would require a partial denture, a bridge or surgically-placed wide-diameter implant, is to place a keyhole mini implant at the first visit and a porcelain crown two weeks later. The first appointment takes less than an hour while the second can be completed in a half hour sitting. As you can imagine, the loss of a front tooth is a very upsetting event and then to have it replaced with a removable denture, even as a temporary measure, makes for a very unhappy situation!



The images above demonstrate a better long-term option and although the implant site is a well-healed long-standing space, in many instances these implants can be used AT THE TIME OF EXTRACTION to carry a non-removable temporary acrylic tooth, completely eliminating the need for a

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denture! Once healing is complete at around six months, the permanent porcelain crown can be created to provide an optimal solution.

The first image in this case shows the space prior to implant placement, then the implant in position and finally, the porcelain tooth upon completion. This type of treatment is completed in two appointments a few weeks apart. To emphasise the simplicity of this treatment, let me again state that the first appointment lasts around 40-60 minutes and the second, around 20-30 minutes and the best part is that it can be performed virtually painlessly.

Here is a testimonial from one of my patients who had this very same treatment back in 2004.

“When I was 17 I had an orthodontist who made a gap wider because I was naturally born without a tooth, then had an implant put in, which was screwed in. It wasn't particularly painful. So that was seven years ago when I was 17. I'm now 24 and I've had no problems with it.”

Remember, you can watch the actual video testimonial by visiting www.KeyholeImplantDentistry.com.au.

2. Replacing A Single Side Tooth:

Replacing a side tooth is a very common procedure. Often people are missing the first or second premolar, making it unsightly to smile as these teeth are visible at the corner of the lips. The placement of an implant and porcelain crown is very straightforward here and can revitalise the smile and restore self-confidence from the first visit!



In the first case, I wonder if you noticed that there is some additional pink porcelain at the gumline in order to replace the deficient gum contours and create the illusion of normal gum architecture?

Although in the second case this was not necessary, I am sure that you would agree that in both cases the porcelain tooth looks as though it is actually growing out of the gum, making it difficult to tell the difference between the natural tooth and the implant-supported porcelain tooth.

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This is a brilliant technology that has taken science over 2000 years to create! And the best part is, that it is virtually a painless experience with immediate, successful results that have been proven to serve potentially for a lifetime!

Here is another testimonial from one of my patients who had this same procedure performed on each side, one premolar on the right and another for her left side.

“I came to see Dr. Shohmelian in July last year. I had a baby tooth, no permanent tooth. I bit onto an olive. The tooth was loose and of course it fell out. I hated my plate and popped in and came and had the two permanent implants. The best thing I've ever done in my life. I expected it to be uncomfortable but didn't even feel it. In fact I almost fell asleep while it was being done. A week later I came and had the permanent one attached and as I said, it's just the best thing. So anyone who's got a plate, there's no option except to come and have a permanent implant.”

Let me encourage you to visit www.KeyholeImplantDentistry.com.au and watch the actual video testimonial.

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3. Replacing A Single Missing Molar:

It comes as no surprise that our back teeth, the molars, are the most complex in structure. The first of these teeth appear in our mouths at around age 6, the second molars at age 12 and the third molars (wisdom teeth) between age 16 and 25.

As discussed in the earlier chapters of this book, the chewing surface of these teeth is subject to decay due to the deep fissures and grooves that can trap sugars and food particles. Furthermore, as they are so far back in the mouth, flossing is often difficult, resulting in deep undetected cavities which often lead to early loss of these teeth.

Because molars are large teeth with a large surface area for chewing and require greater anchorage in our jaws, they naturally have two or three roots.

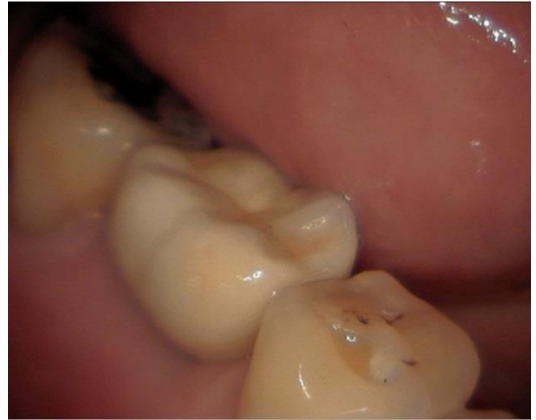
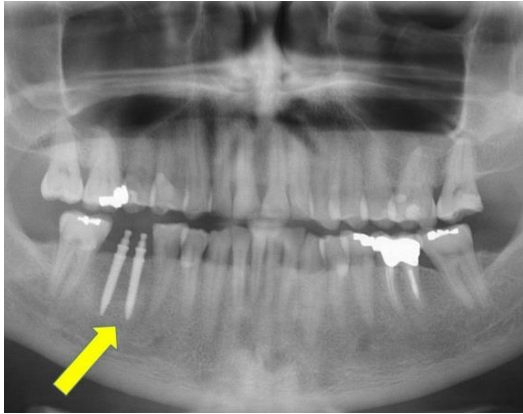
Accordingly, replacing them with a single keyhole mini dental implant is not advisable as this could lead to overload and eventual failure. Such large molars are best replaced with double implants as in the images below.



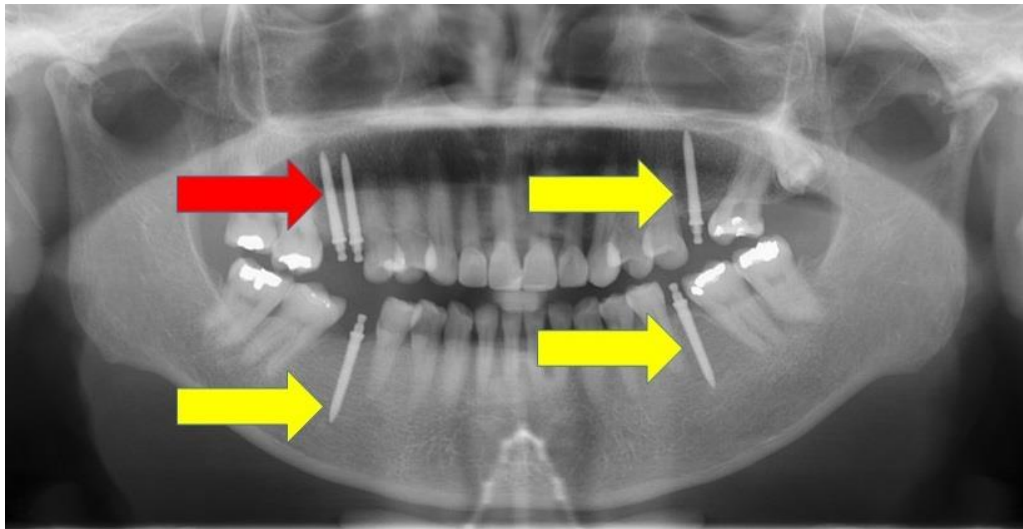
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If a molar tooth has been missing for a very long time, we often find that the resulting space between adjacent teeth is narrower than usual due to drifting or tilting of such teeth towards the gap. In such instances, replacement is carried out with a single implant as would be the case for a front or side tooth. The radiograph below shows three such teeth (yellow arrows) being replaced for the same patient with just **one** implant per molar.



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Notice the tilt on the molar behind each of these sites which has reduced the available space for the replacement tooth. In comparison, note the double implants (red arrow) where the space for the final replacement crown is wider than in the other three sites. This would have probably been due to the fact that loss of this tooth was more recent than in the other sites, allowing for far less tilting of the molar behind the gap.

Clinically we find that a large molar crown which is connected to a single implant in a wide site where two implants would have been preferable will either loosen within the first four months or fracture within the first 4 years.

Let's take a moment to digress and discuss the issue of a failed implant and what it means for the patient.

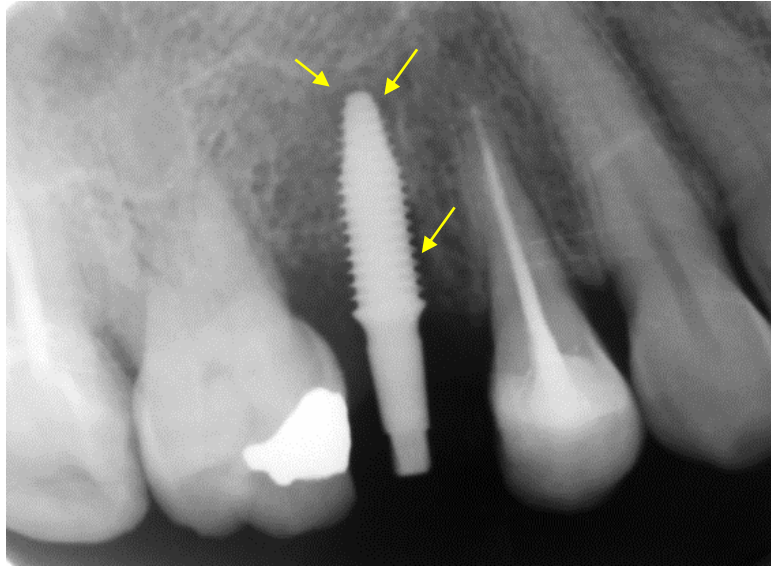
The image below shows a dark shadow around the implant, indicative of failure due to loss of the connection between the bone and the titanium. An implant that is undergoing loss of osseointegration exhibits slight mobility and tenderness upon being subjected to pressure.

Clearly, such implants cannot serve as reliable supports when chewing and must be removed. Most patients who have experienced this situation admit that it is by no means a painful experience. There is simply an inability to securely and confidently chew on the offending side. They will also admit that removal of the implant was in fact an easy process, usually without the need for local anaesthesia. Loose implants are simply rotated counter-clockwise to disengage from a sheath of soft tissue that forms around them. Once removed, the area can be allowed to heal for around 4 months before inserting a new wider implant. In most cases, success is achieved with this second procedure.

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Getting back to our discussion about molars which require double implants, it makes sense that using double implants will dramatically reduce the load and result in more successful outcomes.

However, in some instances, under normal chewing forces, I have had cases where the implants have fractured!

You are probably wondering “if double implants are more ideal, why would they fracture?”. The images below demonstrate one such case where the top half of the implants have fractured, leaving the lower half in the jawbone.

From the outset, let me say that this does not cause any long-term problems for patients and the fractured implants can be left where they are. In fact, their presence actually stops the continued loss of bone experienced after loss of a tooth. Therefore in the rare instance where this has occurred, the

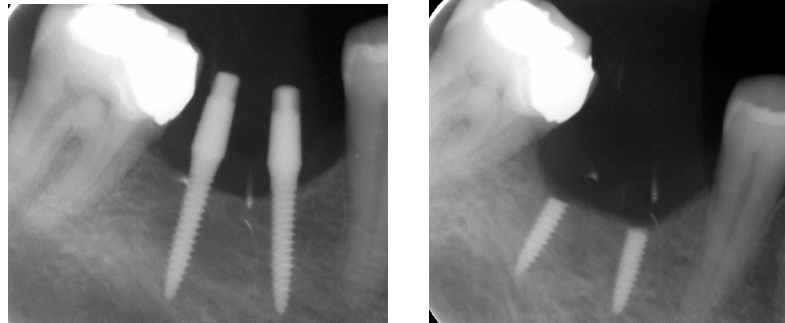
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implants have been left undisturbed and have not caused any complications warranting removal.

In this case you will note that these implants are very narrow, 2mm in fact and therein lies the problem.



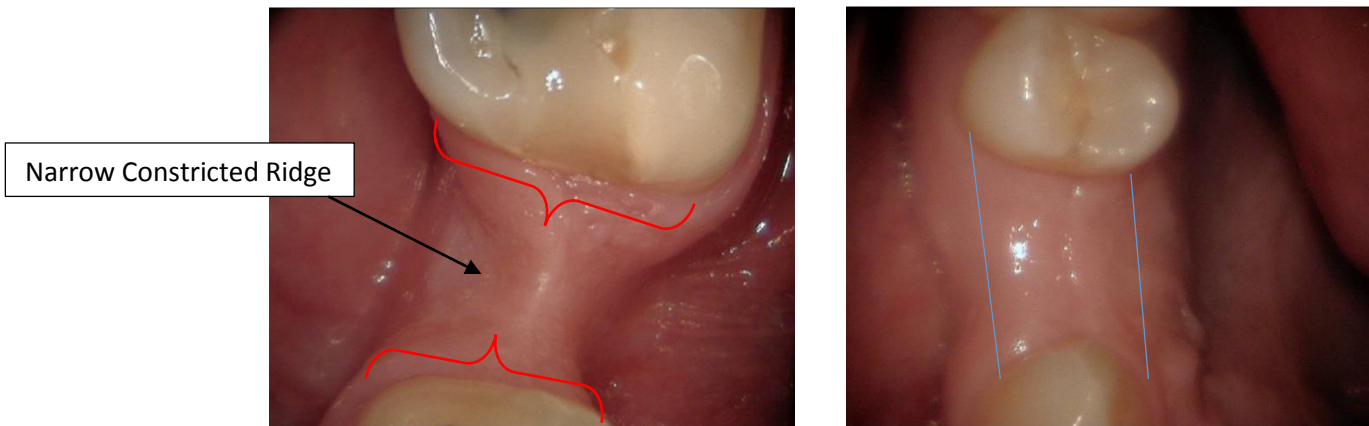
The reason for such failures lies in the need to place very narrow implants due to the narrow width of the bony ridge. You will recall from earlier chapters, that following extraction, the bone that originally surrounded the tooth simply resorbs over the years. Usually, the older the extraction site the narrower the ridge. The more recent the loss of the tooth the wider the ridge and greater potential for a reliable long term outcome with implants.

Let's review this issue. Here are two more images of ridges following the extraction of teeth. The first image is of a long-standing extraction site demonstrating a narrow ridge. Notice how wide the gums are around the remaining teeth in comparison to the middle of the ridge. Compare that narrow ridge with the second image which is of a recent extraction site. The ridge is virtually full width, nearly as wide as the gum around the remaining natural teeth.

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Narrow ridges which allow only for the narrowest of implants require that the molar crown be designed to take minimal load. It therefore needs to be designed to have a flatter chewing surface than a normal tooth in order to reduce side-to-side chewing forces, as well as only $\frac{2}{3}$ the width of a normal crown.

Ordinarily the upper and lower teeth lock into each other to a depth of 2-4 mms and when we chew side to side, the inclines of opposing teeth exert large forces as they ride against each other. The image below shows two porcelain crowns with deep natural anatomy on laboratory models, ready to be attached to natural teeth. However, such contours would be unsuitable for crowns supported by narrow implants in narrow ridges. Notice how deeply they lock into each other, resulting in strong forces being applied to the foundations in side-to-side chewing even more so if the patient has habits such as nocturnal grinding (bruxism) or clenching!

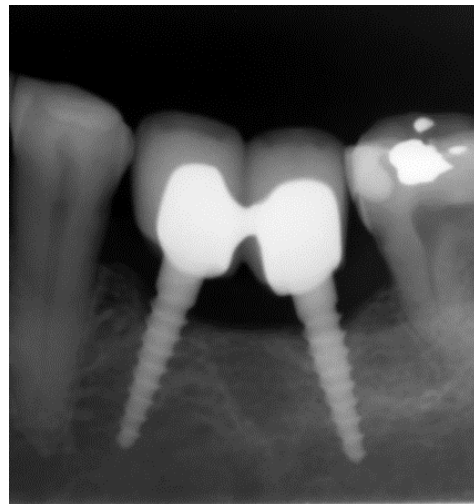
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Flat chewing surface
2/3 normal width

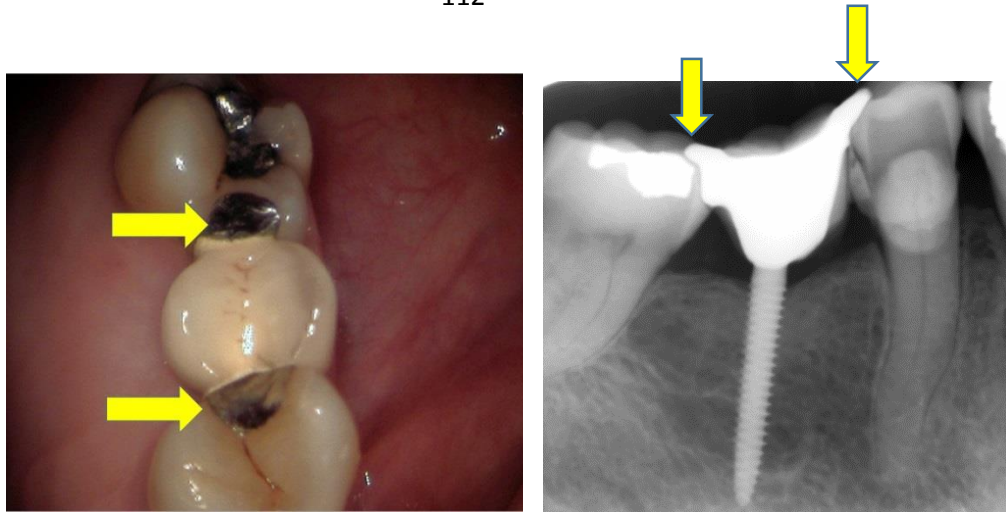


Alternatively, where such ridges can only allow for implants that are 2.5mm or less in diameter, if possible, the porcelain crown should be attached to an adjacent tooth on either side, as in the image below. The arrows point to inlays that fit INSIDE the adjacent teeth, thereby spreading the chewing forces to avoid overloading the implants.

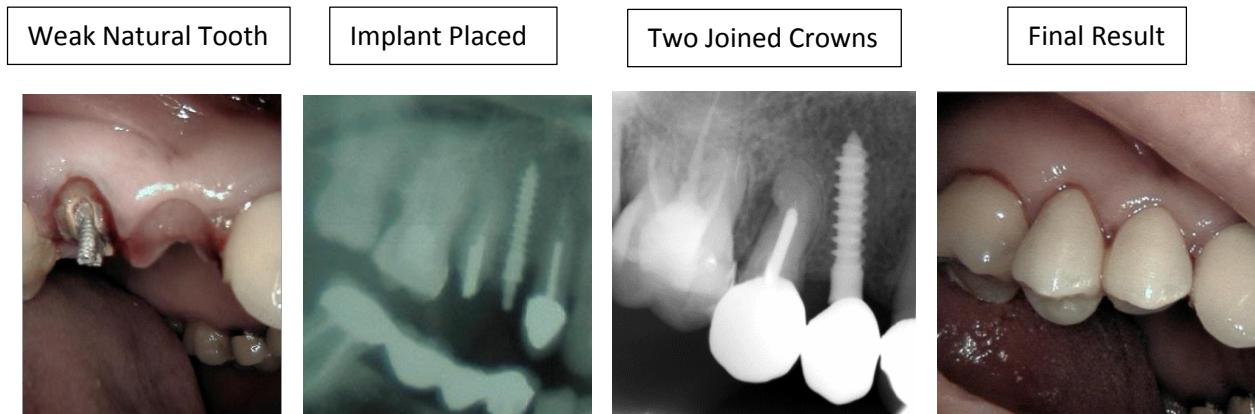
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If the adjacent tooth may require a crown in the future due to having been extensively filled or having had root canal therapy, it is preferable to actually create a double crown structure which takes the pressure off the narrow implant while strengthening the weak natural tooth. The images below are of such a case.

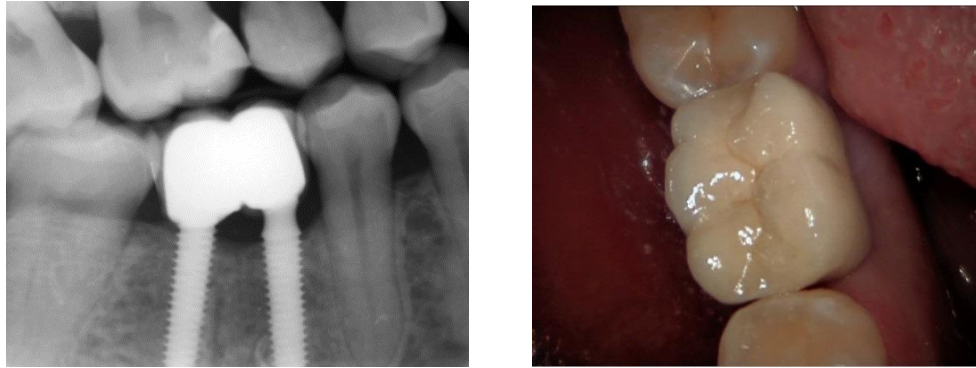


Only if the ridge allows for the insertion of 3mm or 3.5mm double implants which do not fracture under the chewing forces exerted by our jaws, can the replacement tooth be created with normal width and with normal anatomical contours, as in the images below where a full size crown was placed on two 3.0mm implants.

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Compare the two images below which clarify this issue further. The first image shows a 3.5mm and 3.0mm implant in position while the second image is of two 2.0mm implants. As you can appreciate by now, the reason for the selection of the various diameters of implants is the available width of bone into which the implants are to be placed.

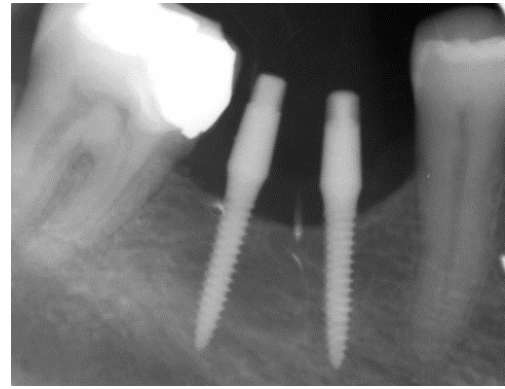
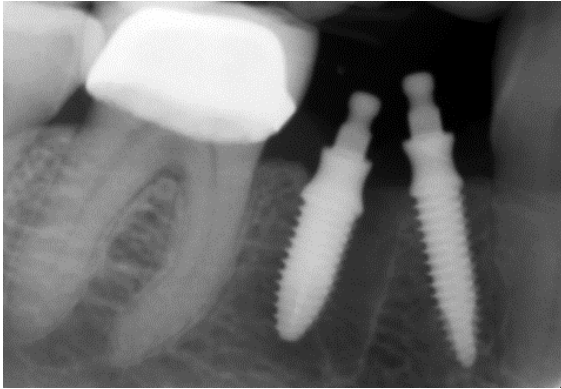
The ridge can vary dramatically within a given site such that even within the space required for a single molar, the ridge can be extremely narrow in one part while remaining very wide in another. These foundational factor determines not only the size and number of implants but the design of the crown that will replace the missing tooth.

The inherent strength of the wider implants is virtually double that of the narrower and therefore, whenever possible, these are preferable for free-standing replacement molars. Otherwise, the design must spread the load onto adjacent teeth if we are to avoid the inevitable fracture of the narrower implants.

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4. Replacing Multiple Missing Teeth:

Due to the inhibitive cost of replacing multiple missing teeth, most patients choose to have a removable denture, whether made of acrylic or with a chrome frame. For many others though, it is simply the skill of the dentist that limits the options for such patients.

It was one such patient who was the catalyst for the advancements about which you are reading in this book!

As mentioned in an earlier chapter, it was back in 2003 that I had to find a solution to help one of my elderly patients who was very unhappy with having to wear a very large acrylic partial denture. You may recall that I referred to this 78 year old patient's images earlier. She was the very first in Australia who benefited from this new technique.



The denture covered the palate completely and was attached to the last of the only three remaining natural teeth in her upper jaw. Coverage of the palate to that extent meant that this patient lost all the sensations associated with hot and cold foods as well as the textures that she used to enjoy. In addition, it was relatively unstable as it had only one clasp on a

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back tooth (red arrow in the image below), allowing this denture to flip and drop easily as it pivoted around that single wire retainer.



This was a very unstable and unsatisfactory method of replacing her missing teeth, but if the dentist is unskilled in performing the life-changing treatments now available through keyhole mini implant dentistry, that is the best that can be done!

As far as I am aware, around 95% of dentists in most countries do not perform implant procedures, even if they have attended training courses. The reason for this is simply that implant dentistry presents an entirely different level of complexity and risk if attempted by those who are either poorly trained or fearful of causing harm to their patients. Needless to say, we all have to start somewhere with our first implant patients but that initial hurdle is often too difficult for many dentists to overcome. Accordingly, they do the best they can within the limitations of their knowledge and skill or refer to someone with specialised skills who can assist such patients.

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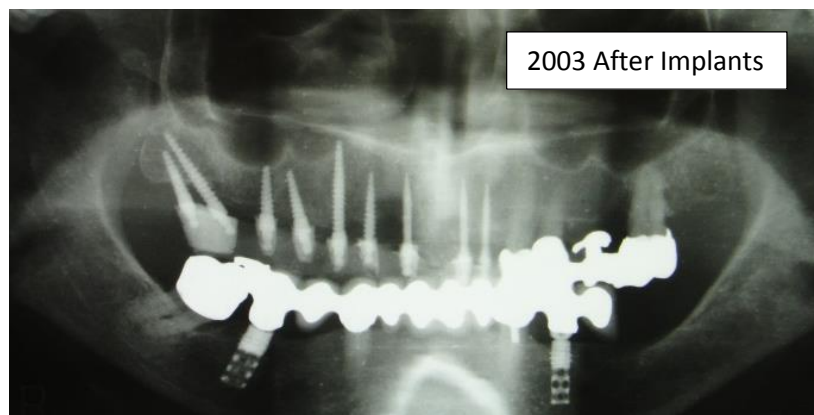
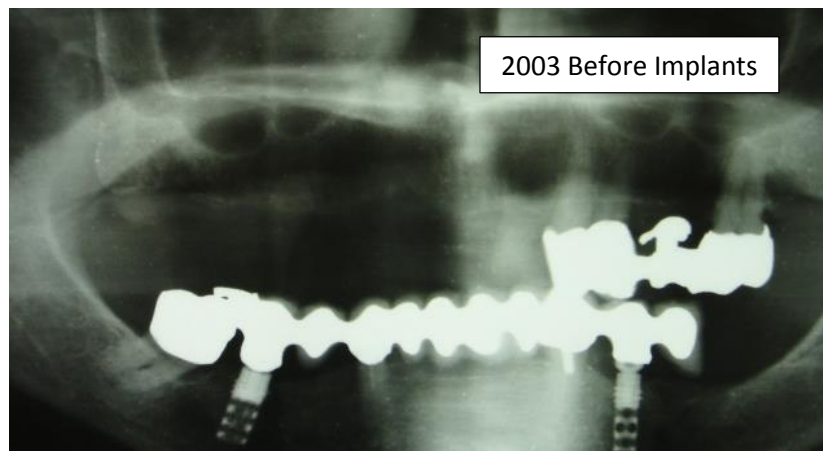
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By placing nine keyhole mini implants I was able to create a beautiful nine-tooth non-removable bridge with nothing covering the roof of her mouth! The treatment worked out perfectly as you can read in the narrative of her testimonial 8 years after her treatment, at the age of 86!

“In 2003 I was wearing an upper denture which I did not like. I came to see Dr. Shohmelian who said that I could have these mini implants on which to put proper teeth. I did so, it was totally non-invasive and I've never looked back since!”

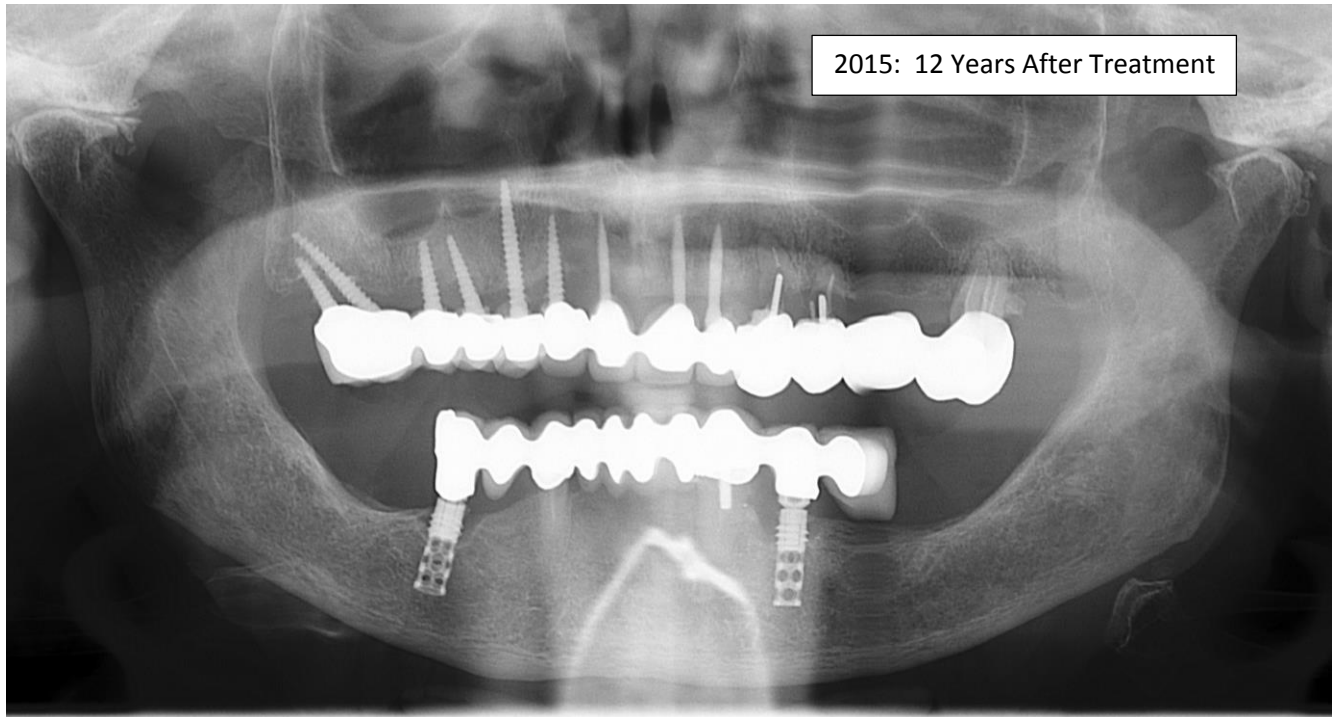
The X-ray images below were taken in 2003 before and after implants were placed. The third X-ray image was taken in 2015 showing the bridge and implants which had been serving her for 12 years at that time.



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There are 9 implants in the upper jaw! Remember she said it was “totally non-invasive”. That's quite remarkable isn't it? To have had that many penetrations through the gum and into her jawbone, yet she said it was “non-invasive”! As a result of her experience, which over the years has been confirmed time and time again by the descriptions from countless other patients, it gives me great confidence to be able to recommend this type of treatment to both to patients and the profession, knowing that it is virtually painless and definitely the most conservative treatment possible!

These radiographic images not only show the upper bridge but the lower bridge also, a bridge that had been attached to her existing natural teeth and two traditional “Core-Vent” wide-diameter implants which had been placed in England and had served well since 1985. I used to also perform treatments with those implants in the mid 1980's and can absolutely confirm that the

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surgical procedure to have those two implants placed in her jaw was far more invasive, risky and painful than the nine I placed in her upper jaw!

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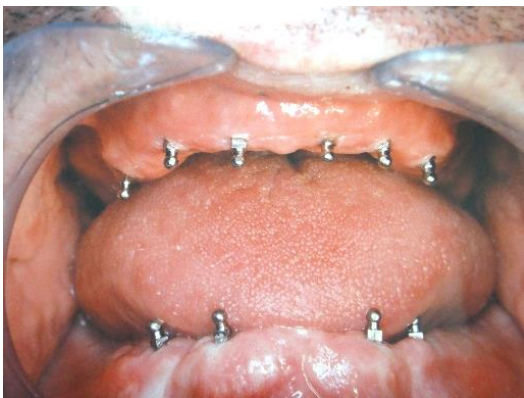
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5. Replacing A Complete Set Of Missing Teeth:

For many patients it's too late to salvage any of their natural teeth. In the past and even now, in many countries where advanced dental treatments are not available or affordable, patients can be subject to loss of all their teeth at an early age. The earlier the loss of teeth, the greater the loss of the surface layers of the jawbones. The loss of foundation for complete dentures results in extreme instability and an inability to enjoy a vast number of foods that most of us would take for granted.

For such patients, we now have a wonderful treatment using these keyhole mini implants to stabilize loose dentures both in the upper and/or lower jaws.

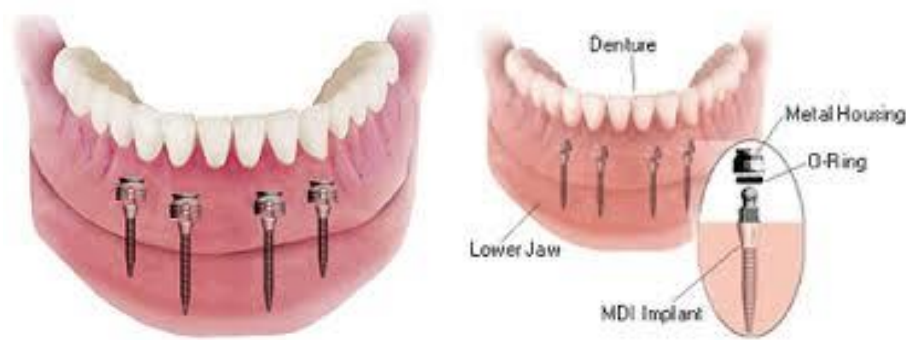


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The treatment requires the placement of 4 implant supports in the lower jaw (6-8 in the upper jaw) so that the little ball on the end of each implant can allow attachment of the denture via precision metal housings. These housings are located within the denture and have small rubber O-rings which slip over the ball end of each implant to provide very solid retention and complete stability. See the diagrammatic representation below:



When patients have flat lower jaws due to excessive resorption and cannot support a stable denture, we can place these implants using a keyhole approach and connect them to the precision attachments to create a life-changing result. This is usually done in one visit. Such dentures are so firm and stable that patients can bite into all manner of foods within 24 hours after treatment including apples!

In the upper jaw, we need to have a minimum of six implants because of the softer bone structure that must carry the forces from the denture.

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Accordingly, we spread the load over six rather than the four required in the more dense lower jaw. Some practitioners will use eight implants to reduce the forces even further. The wonderful thing about this treatment is that the palate is left uncovered and therefore the temperatures and textures of foods can be enjoyed much more than with a traditional complete denture.

The image below shows six implants in the upper jaw which stabilise and retain the palateless complete denture. Note the absence of incisions, bleeding and stitches and the very wide ridge which allowed for placement of 3.0mm diameter mini implants to provide a fantastic foundation to retain the complete denture.



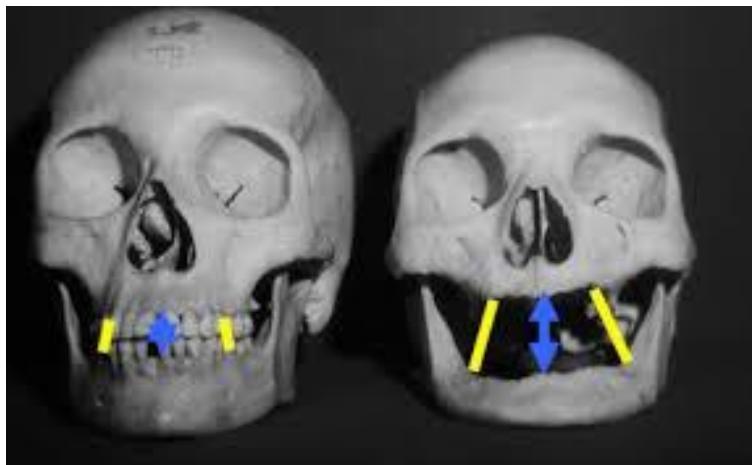
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However, often patients have worn upper dentures for many years, resulting in the loss of substantial bone structure, making implant placement very difficult. The image below shows the extent of bone shrinkage after loss of both upper and lower sets of teeth and decades of wearing removable dentures.



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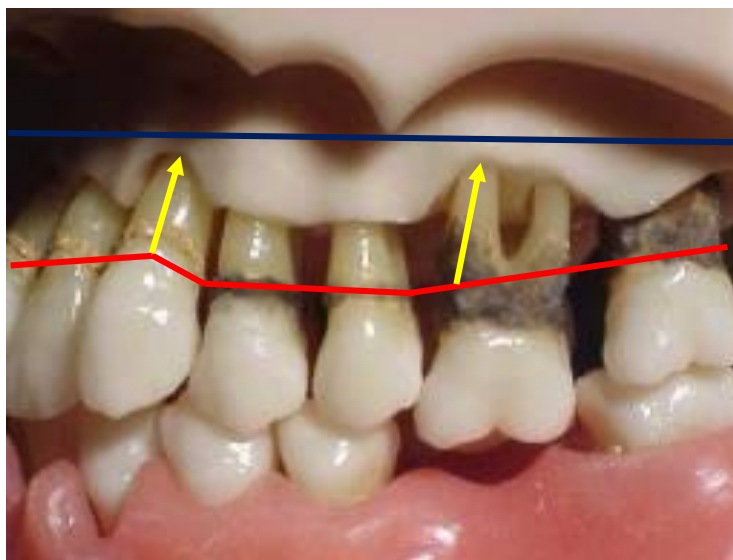
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This is even more of a problem if the teeth were originally removed due to periodontal (gum) disease which in itself, destroys much of the foundational bone. Although I am definitely against the extraction of teeth, unfortunately, the continued retention of teeth which are severely affected by uncontrolled gum disease is actually detrimental to those patients' ability to wear complete dentures and to have any form of implant treatment in future.

For that reason, if more than 60% of the root length has been lost due to periodontal disease, I suggest it is best to extract rather to prolong the inevitable loss of both the teeth AND the supporting jaw bone.

The image below displays periodontally diseased teeth and jawbones with the red line indicating the approximate height of where the gums would have been prior to the disease becoming so advanced. The yellow arrows indicate the amount of supporting bone that has been lost as a long-term result of this disease. If the teeth are not removed or treated effectively, complete loss of the remaining bone is inevitable approximately up to the blue line, resulting in a very poor, even flat foundation to support the complete dentures.



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Although upper dentures function reasonably well due to the suction that can be created by drawing the air and saliva out from underneath, the eventual conversion of the bony ridge to mobile soft tissue makes it increasingly difficult to place implants. In the lower jaw, even if there is a reasonable ridge height to begin with, over time, the instability of the denture and the pressure it exerts on the gums and underlying bone will result in resorption that will make it increasingly difficult for implant placement.



Side to side movement of the lower jaw, as well as movements of the tongue and cheek muscles during chewing, all serve to destabilise such dentures.

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Furthermore, the pooling of saliva in the lower jaw provides lubrication for these dentures which results in them virtually being an impossible prosthesis with which to chew as they glide over the severely resorbed bony ridge.

For this reason, large numbers of denture wearers do not bother wearing their lower complete dentures for eating purposes and use them just for aesthetics.

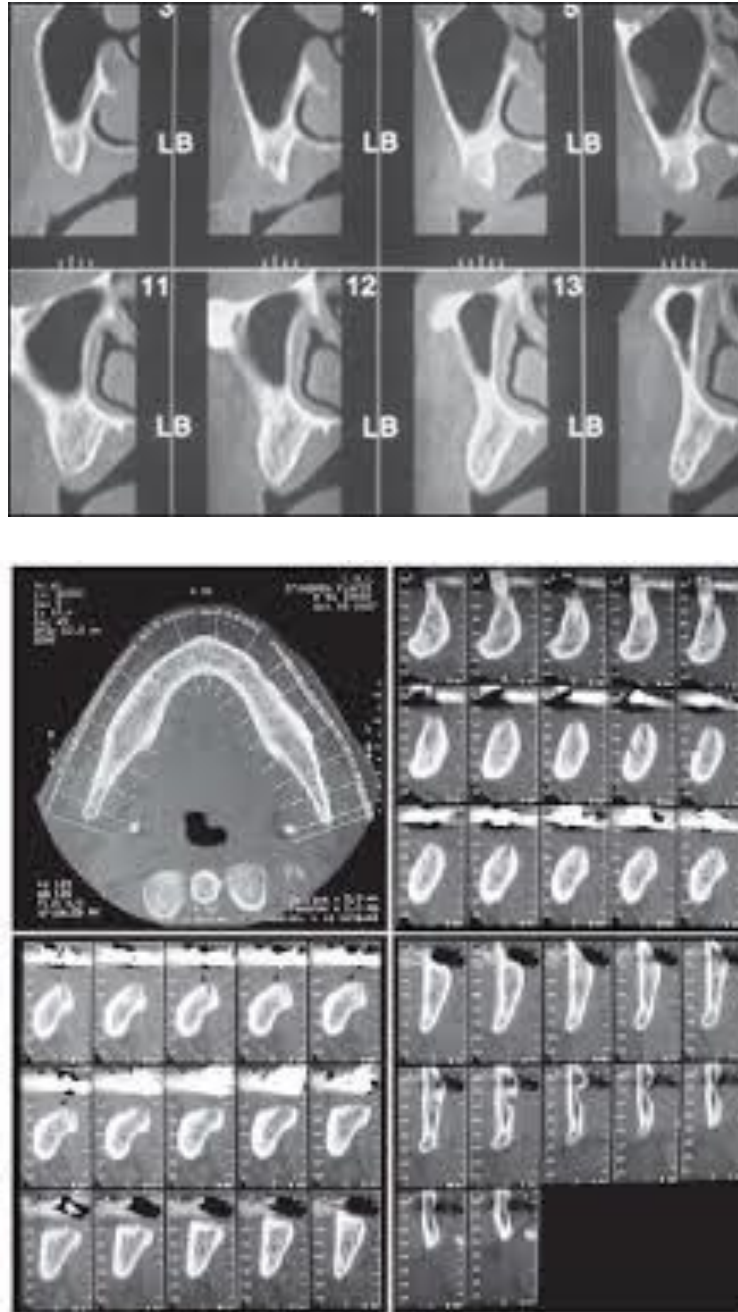
Looks can be deceiving. Often, thin ridges in the upper jaw are covered by excessively thick soft tissue appearing quite wide and suitable for implants, but under the surface they can be very narrow and may present extreme difficulties when keyhole implants are planned. For this reason, CT scans are required prior to performing any treatment because the actual width of the bony ridge can be seen in cross-section at any given point. Usually the images are taken at 1mm intervals, allowing for very accurate assessment of the most suitable sites for implant placement.



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In the past, whether it be for the upper jaw or lower jaw, we had to do this type of treatment with conventional implants which required an incision extending from one side of the upper jaw over the entire ridge to the other

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side in order to visualise the anatomy and select the most appropriate implant sites.

The image below shows such an operation for the placement of 8 conventional implants. This very large reflection of the gums was essential in those days as we did not have the luxury of CT scans until around the year 2000. At least with these scans, patients do not need to undergo operations that may yield a fruitless result if it is found that the bone structure is too narrow for implants, as would have happened from time to time.

As you can imagine, patients who had no other option had to simply endure this extensive procedure with the hope of being able to have a stable set of teeth again once treatment was completed.



No doubt you will agree that such invasive treatment would be a dreadful procedure for anyone to undergo! The gum had to be cut and lifted off the jawbone from one end to the other to allow for placement of these implants!

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That massive wound would need to be stitched and the tension caused by the swelling of those tissues, would cause substantial pain and even bruising once the numbness wore off! To make matters worse, the swelling would completely eliminate the possibility of wearing a denture for weeks, forcing the patient to live on a liquid or soft diet until a new denture with a soft lining can be fabricated.

Furthermore, nothing more can be done to improve the situation for at least 6 months to allow for osseointegration of the implants before the abutments can be connected and the final prosthesis fabricated. The dentures need to be lined with a soft liner to minimise pressure on the wound, even with the soft diet that is all that such patients can tolerate.

Dentists who do not offer Keyhole procedures using narrow diameter solid “mini” implants still perform such invasive procedures and for that reason, patients need to be fully informed of what is being planned for them BEFORE accepting any proposed treatments.

Why should any patient be subjected to such extensive surgery when a simpler option exists that can create an outcome that is perfectly satisfactory, virtually immediate and at a fraction of the cost! I simply do not want *anyone* reading this book to even contemplate going through such treatment!

The alternative option of Keyhole Mini Implant Dentistry is so refined, so elegant and so kind to our patients. I am sure that by now you understand why it is that I recommend THIS option for everyone who needs to have replacements for their missing teeth, whether it be the replacement of just one tooth, or an entire set especially if it's an entire set!

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Here is the testimonial provided by this 70 year old gentleman about his treatment with upper and lower dentures that were connected to four keyhole mini implants to stabilise his lower complete denture and six for his upper denture.

“I’ve found the teeth extremely good. They’ve been solid in my mouth. I’m able to eat a meal. I have been able to taste my food which is very important as far as I’m concerned. I’ve never been happier with my teeth. I’ve had problems with teeth most of my life and I’ve had plates etc. but this is something that I’m really pleased with and I’m extremely happy that I’ve done it.”

It is important to note here that the softer bone in the upper jaw results in failure rates nearly 3 times higher than in the lower jaw which has very dense bone structure. To quantify this, around 15% of keyhole mini implants fail in the upper jaw when covered by A REMOVABLE COMPLETE DENTURE. This is due to a combination of the softer bone and the need to insert and remove the denture a number of times each day for cleaning purposes. However, let’s remember that although the failure rate is high, the success rate is still around 85%!

However, there IS a way to increase the success rate to around 95% and that’s by using NON-REMOVABLE teeth in the upper jaw, that is, a bridge that is either permanently cemented to the implants or ONLY able to be removed by the dentist on a 6 monthly or annual basis for examination and cleaning! This latter type of prosthesis is known as a “hybrid bridge”.

This is because a non-removable bridge unites or splints all the implants together, spreading the load. And because a cemented bridge cannot be removed by the patient as it is permanently attached to the supporting implants, there are no jiggling forces that can loosen the implants, in distinct contrast to removable dentures which need to be cleaned after every meal.

Accordingly, if you have a large number of missing teeth in your upper jaw or have lost all of them, consider a non-removable bridge instead. It is definitely more costly, around 3 times more costly, but you will be far happier with the initial result, not to mention the long term results which you can potentially enjoy for a lifetime!

The option to have a bridge that only your implant dentist can remove is an excellent one as well. Using the attachments which are designed for denture stabilisation, a set of teeth with a chrome frame is fabricated and clicked onto the implants, only to be removed for cleaning at your regular dental visits!

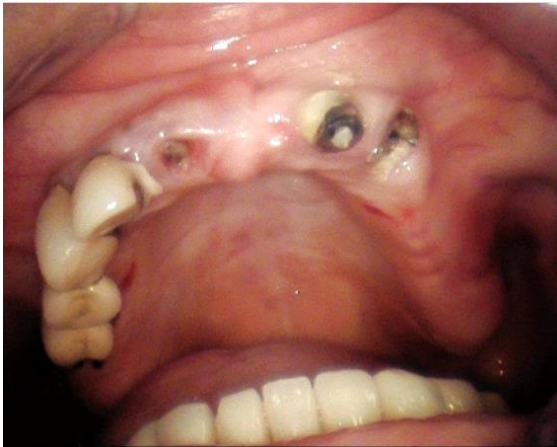


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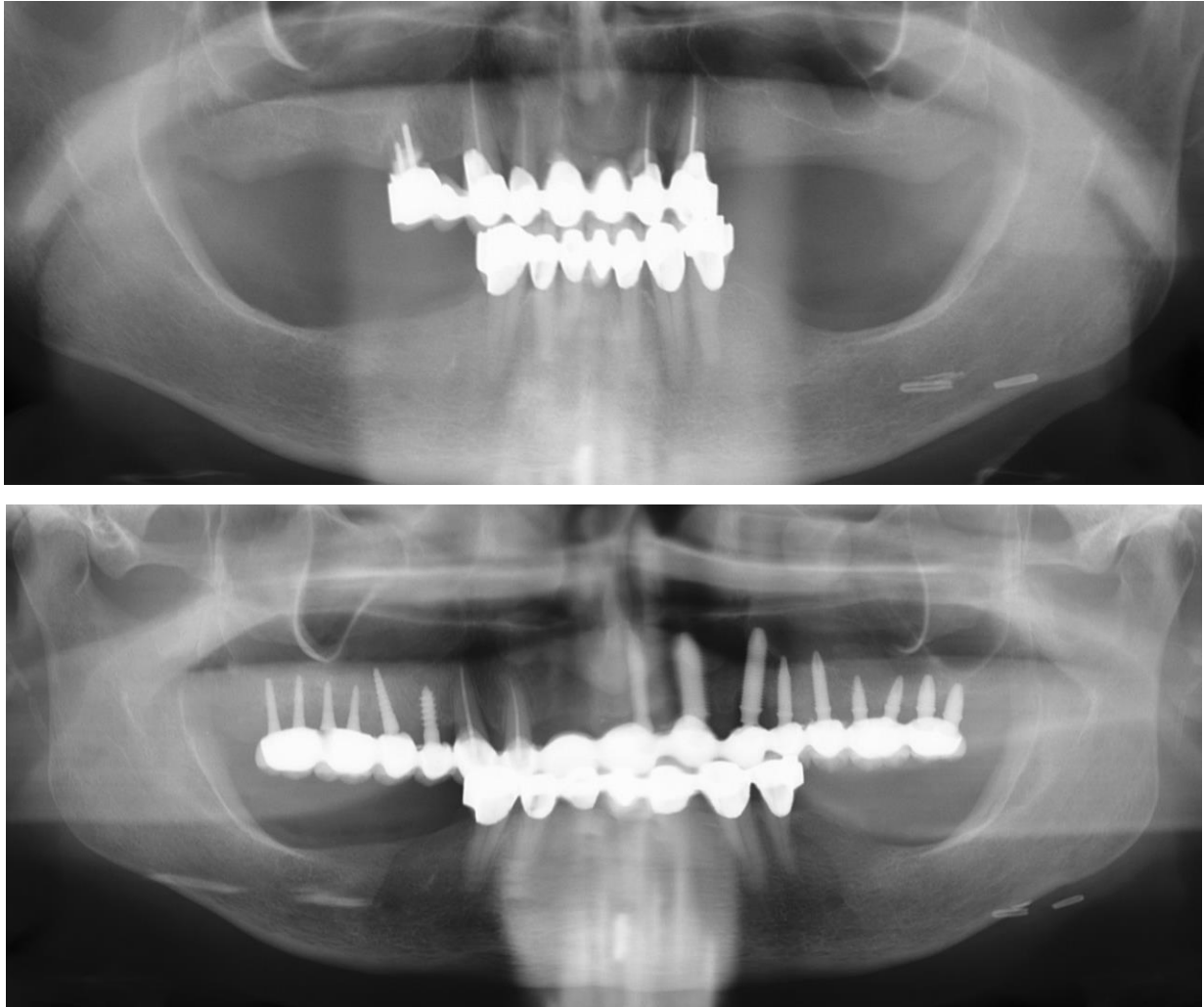
In the case below, this patient had only a few remaining worthwhile teeth in her upper jaw. In combination with these keyhole mini implants, a strong foundation was created to carry a non-removable porcelain bridge which will last her a lifetime! As you can see from the second image, the roots that were unsalvageable were extracted and at that same visit, implants were placed in the sockets to carry temporary teeth. Following a period of healing, the permanent porcelain teeth were created to provide optimum aesthetics and to restore chewing function.



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You will note that there are 15 implants under this non-removable bridge, many of which are short and narrow due to the restrictions provided by the available bone structure. Each of the molars on both sides have double supports in order to spread the load from these large teeth over the shortest and finest of the selected implants. As a result, this bridge is extremely stable and reliable as the extensive support that has been created will distribute chewing forces in a manner that cannot overload the system. As you can imagine, this is the most costly form of dental rehabilitation as it requires the

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maximum number of implants and a complex prosthesis that can recreate the appearance, feel and function of natural teeth.

The simpler semi-fixed alternative (hybrid bridge) can reduce the overall treatment cost by around 30% while still providing an excellent result. I am referring to an acrylic bridge which is strengthened by a cast metal mesh framework which is supported by precision attachments. These attachments connect with 6 - 10 keyhole implants in the upper jaw and at least 4 in the lower jaw as described earlier in the chapter about “Denture Stabilisation”. This type of hybrid bridge is removable but ideally, only by the dentist. Please note that if a cast metal mesh is not included in the acrylic bridge, it will fracture easily during heavy chewing function and for that reason, it is a mandatory part of the design. Here is an example of one such semi-fixed hybrid bridge.



As already mentioned, this type of semi-fixed bridge is supported by housings, which are shown in the images below. You may recall from the chapter about denture stabilisation that these precision attachments actually

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have rubber o-rings in them that slip over the spherical head of each implant to engage around the neck, thereby creating excellent retention and stability. In the case of these hybrid bridges however, instead of being connected inside the pink acrylic of the denture base they are incorporated into the acrylic teeth. As you can imagine, with the minimal structure that surrounds them, it is essential that the bridge has a strong metallic mesh framework within it if we are to avoid fracture.



This technique is ideal for a large proportion of patients because it combines the benefits of non-removable teeth with that of keyhole implants **without** the much higher cost associated with porcelain bridges.

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Dental Tourism

In this final section I want to address the issue of “dental tourism”, that is, the idea of going to another country to have your treatment performed.

The usual driving factor is cost! Whether it be Thailand, Mexico, India or wherever is the “flavour of the month”, there are inherent risks when you have your treatment performed far from your home.

Every type of dental treatment has the potential for a problem to arise at some point in time and the best person to resolve that problem is always the dentist who performed the original treatment. They know what your condition was prior, during and after treatment and are best equipped to help in the case of complications, whether they arise immediately or years later!

Because the cost of treatment with Keyhole Mini Implant Dentistry is around half that of conventional implants, there is a major improvement in the affordability of such treatments, making it more ideal to seek the services of a local dentist.

Rather than boarding a plane to who-knows-where to have someone take care of you to whom you will have no recourse in case of complications, I highly recommend that you seek the services of local dentists who can provide you with the benefits of the treatments you have been reading about in this book and who will be able to take care of any issues that may arise after treatment has been completed. As mentioned already, some of these issues may arise many years after the initial treatment and for that reason, I do sincerely recommend that you avoid the temptation to go to another country for treatment.

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If you are able to source a reputable clinic overseas, especially if your friends or family have gone there and have not had problems with their treatments, at least over a 5 year period, then take the risk! In addition, if you are willing to travel back there in case you have any issues, then by all means, proceed but fair warning, proceed with absolute care!

Here is the final testimonial that I want to share with you. It is the narrative from a video testimonial provided by a 45 year old lady patient who had considered going to Thailand for her treatment but found that the solution was available for her in her own backyard! If you have entertained similar thoughts, I encourage you to sincerely consider keyhole mini implant dentistry as the best option to help you, just like we did for this lady, rather than going out-of-town to seek “cheaper” services.

Here is her testimonial which relate to the images below:

BEFORE TREATMENT



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DURING TREATMENT



“After years of horrific dental experiences and putting up with a lower metal partial denture for years which I hated, I did a lot of research on the internet. I went to see three other implant specialists. First one told me I couldn't have implants. Others said I needed bone grafts and it was all getting so expensive and so hard I was even going to go to Thailand. I sent over some X-rays to Thailand - I was getting pretty desperate and then I came here and saw Dr. Shohmelian and he did a lot of checking and said “yes” I could have these mini diameter implants. And of course, I asked a lot of questions because some dentists said “no”, some said “yes” and after he fully explained everything to me and the minimal procedure that would be needed, I thought “wow, this is what I've been looking for”. Sorry, I get a bit teary because he was so good. And anyway I agreed to have it done. And the cost was going to be a lot better than what I expected and to be able to have this done in a couple of weeks without travelling to and from Thailand and things like getting stitches. So I thought, “this is great”. Anyway, I came here yesterday, very nervous wondering what to expect and it was really good. There was

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just very small amount of pain, nothing that was any worse than what I've had with any other dental experiences. I went home, no, to the motel, had a good night sleep and came back this morning where he completed the other side and I'm just very pleased I came here."

AFTER TREATMENT



(Scene 2) About four weeks ago I had the implants put in with temporary teeth over to keep me going for a couple of weeks till the real teeth. Had no problem with that and now it's been around two weeks since I've had the permanent teeth in and everything's going great. I found this Christmas day I could eat everything, cashews everything, not worrying. Didn't have to run off and clean them. I've had no problems whatsoever and it just feels really good, really good to get rid of the denture and there's no pain and everything feels natural. I'm just back here today for a little bit of fixing up and to make sure I've been cleaning them okay and so far so good."

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Where To Now?

I hope that by now you are convinced that Keyhole Mini Implant Dentistry is the most desirable method to conservatively replace your missing teeth with non-removable porcelain crowns and bridges. All you need to do now is to find a dentist in your locality who performs these treatments.

Here are a few resources to help you access these dentists. Needless to say, such information changes constantly, so you will definitely need to do your own research on Google or whichever search engine you prefer. Search using your locality and the keywords “mini implant dentist” or “mini implant centre” (or “center”). Of course, call the dental practices and ask if they provide services to replace missing teeth with “mini” dental implants, especially with fixed crowns and bridges. Let them also know how many teeth you need replaced to get an idea of the possible costs.

To help you identify if the practice you have found will be able to take care of you properly, I have included some key questions you should ask when you call to make your first appointment:

1. Does your practice use mini implants to replace missing teeth?
2. Do you use them only for denture stabilisation or for crowns and bridges also?

(It is very likely that they ONLY use them for denture stabilisation but if this is what you need, proceed with the rest of the questions. However, if you want a single tooth or multiple teeth replaced with crowns and bridges, you may need to keep looking for another dentist.)

3. How long has the dentist been using this method?
4. What is your success rate over a 5 year period?
5. What is your policy if an implant fails?
6. How long will it be between the implant and getting the final result?
7. What is the approximate fee for this treatment?

OR

What is the fee per tooth for the implant and porcelain crown?

8. Is this treatment covered by my insurance?
9. Where can I find testimonials from patients who have had mini implants in your practice?

If you are satisfied with the answers you are given, the final question needs to be:

10. When is your first available consultation appointment?

Here are the reference sources I recommend:

In Australia and New Zealand

Australasian Society For Conservative Implant Dentistry: www.ASCID.org

In The United States Of America

THE Resource For Mini Implants www.MiniDentalImplant.com

Elsewhere

Google.com search “mini dental implants” in your area.

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LET ME THANK YOU

In these final pages, I simply want to thank you for giving me the opportunity to share a lifetime of experience with you. This IS my passion, simply because I am a dentist who knows how unpleasant dental treatment can be. In my four decades of clinical experience, I have seen the fear with which patients sit in our chairs, the anxiety they feel, the pain they endure and sometimes, the terrible episodes of surgery that they must undergo for a variety of conditions.

Having personally experienced a number of unpleasant and downright scary procedures at the hands of dentists in my early childhood, I understand the emotions that many people feel when they know they need to have their teeth attended to it is NOT by any means a pleasant experience when having your teeth drilled, filled, extracted or replaced!

Accordingly, as I mentioned at the beginning of this book, look after your (remaining) teeth with dietary control, brush twice every day and floss EVERY tooth every day. I cannot stress enough that these three factors will protect you from unnecessary damage and loss of your teeth. But if you are advised that you must have a tooth removed, please get a second opinion. You will not get a second chance once it's gone!

The options I have shared with you are the most common, and yes, there are some others, such as Maryland Bridges and Fibre-Reinforced Bonded Resin Bridges and a few other methods for connecting dentures to implants. However, rather than complicating the issue of tooth replacement more than

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necessary, I have sought to simplify your options by presenting the most common methods used by clinicians.

In conclusion, let me state that the majority of dentists are ethical and do care for your well-being. As with any field of endeavour, there are vast differences in the knowledge, experience and convictions that each and every dentist will have, which will impact on the advice they will give you. For that reason, before proceeding with complex, costly or irreversible treatment such as extractions, bridges or implants, you may wish to do your own research through the internet but more importantly, by getting a second or even a third opinion.

It is my sincere desire to protect you and your loved ones from completely avoidable dental problems. Look after your teeth! But if you are at a point where you need to have a tooth or multiple teeth replaced, don't be afraid of what you have to go through. We live in wonderful times when conservative methods can make it a simple procedure! I trust that you have enjoyed learning from the information I have shared with you here and that you will find a caring practitioner to resolve your issues. I wish you and your family great dental health for a lifetime!

I only wish that I could PERSONALLY provide minimally invasive treatments for everyone who reads this publication, but it's not possible! This publication is available to audiences around the world and I can only provide services to those who are willing to attend my clinic in Sydney, Australia.

And now, due to the constant referrals I receive from previous patients and colleagues, whether in Australia or New Zealand, I have had to limit my services ONLY to new patients who require solutions for their missing teeth.

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Although I am training and mentoring enthusiastic and caring dentists at the Australian National Centre For Keyhole Implant Dentistry in Sydney to continue serving patients with the same level of attention as I have done throughout my career, I plan to continue personally taking care of as many patients as I can for as many years as possible!

If you would like a review of your own personal dental condition and for me to give you my opinion with a personalised video presentation in which I shall clearly describe the treatment plan I would recommend for you, please follow the instructions below (which are also on my website). But before you do, please feel free to view an example of the type of video presentation I will be creating for you simply by going to the following page on our website: www.KeyholeImplantDentistry.com.au/opinion.html . Not only will I prepare a video presentation for you but I shall email you a written treatment plan also.

If you do not have access to the internet please follow the written instructions below.

There are actually 5 copies of these instructions at the back of this book.

Please cut out the FIRST ONE to give to your doctor and in case you find yourself chatting with someone about your newfound knowledge, you can use the remaining FOUR to help them access our services, whether it be just to get an opinion, or for actual treatments.

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Step 2:

Please complete the form on the next page to provide your name, date of birth, phone number, email address, any medical conditions you may have and any medications you may be taking regularly.

Step 3:

Please mail your radiographs AND completed form to our clinic. I shall analyse your information and contact you by email as soon as possible with a link to the video presentation of your treatment plan.

Following that presentation, many patients simply call our clinic and book the appropriate time to commence treatment while others are happy to simply know more about their options and leave it at that. This is completely up to you. You are welcome to use our services whether you plan to visit our clinic in Sydney for treatment or not.

Please allow a few weeks for me to carry out my analysis and to create your video presentation, a sample of which can be found on our website.

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Needless to say, this is not a free service. The current fee, as well as the sample video presentation of a treatment plan can be found by visiting www.KeyholeImplantDentistry.com.au/opinion.html. In order to make this worthwhile for you and not a waste of your hard-earned dollars, if you decide to proceed with the recommended treatment within 3 months, this fee will be credited towards the overall cost of your treatment. I consider that to be fair. The fee pays for the effort I will need to go through to analyse and prepare your treatment plan and acts as a deposit for your treatment, should you proceed. Furthermore, if you prefer to get a second opinion from another practitioner, the video will give them a clear understanding of what is being proposed.

As a gesture of appreciation for your interest in my life's work and for your faith and trust in asking for my opinion, when you take advantage of this diagnostic service, I would like to send you a signed copy of this book for your future reference or to share with a loved one.

I look forward to being of service to you by helping you gain the clarity you need before embarking on any treatments you may be considering to replace your missing teeth.

Sincerely

Dr. Joseph Shohmelian

Senior Implant Dentist and Director

The Australian National Centre For Keyhole Implant Dentistry

Sydney, Australia

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For the current fee for this service please [CLICK HERE](#). An email will be sent to you with a PayPal link to make your payment in advance for this service. Should you decide to proceed with my recommendations within 3 months, your payment will be credited as a DEPOSIT for your treatment.

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(Work)

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Email Address

Past and Present Medical Conditions

.....

Medications You Take Regularly

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Your Doctor's Name

Your Doctor's Address

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SHARE THE GOOD NEWS

Now that YOU know the truth about the various options available for the replacement of missing teeth, you will most probably share your knowledge with friends and family at some point in time.

If and when that conversation comes up, it may be handy for you to be able to help them obtaining a clear idea of whether they too could benefit from Keyhole Mini Implant Dentistry.

It all starts with sending us the OPG and CT scan radiographs along with the completed form that can provide us with the information we need to create a personalised video presentation of their treatment plan.

For that reason in the following pages there are 4 copies of the “Instructions” and the “Personal Details Form”.

Simply cut out one copy of the two-pages and give them to your friend or loved one.

Once we receive the necessary information, we shall begin the process of analysis and present the treatment plan in the form of a video within a few short weeks.

Please let them know that there is a fee for this service and to visit our website at www.KeyholeImplantDentistry.com.au to confirm our current fee.

As you already know, that fee is allocated as a credit towards the treatment, should they decide to proceed within the following 3 months.

Thank you again, for helping us help others!

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A MESSAGE FOR DENTISTS

If you are unfamiliar with how to perform the Keyhole Mini Implant Dentistry described in this book and can see the value of being able to help your own patients with such treatments, let me encourage you to visit www.MinilImplantAcademy.com for the latest information about online courses, seminars and webinars.

We owe it to the public to constantly improve our knowledge and our services as we strive for the optimum in dental health care for our patients and it will be my absolute pleasure to guide you in this field.

Thank you for your interest in this exciting treatment modality which will help you transform and improve the lives of hundreds and thousands of wonderful people throughout your career people who are trusting you for your opinions and your skills.

I wish you every success in the future and look forward to welcoming you into the global fraternity of Keyhole Implant Dentists.



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