

Smoking & Dental Implants — What the Evidence Says

Canonical:

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Description:

Smoking significantly affects dental implant success. Learn about osseointegration risks, peri-implantitis and cessation timelines from CSSC Melbourne.

Details:

Collins Street Specialist Centre — Smoking and dental implants: what the evidence says

If you smoke and are considering dental implants, you deserve a frank, evidence-based conversation about what that means for your treatment. At Collins Street Specialist Centre, we believe informed patients make better decisions — and that means presenting the clinical picture clearly, without softening the risks or exaggerating them.

The evidence is unambiguous: smoking is one of the most significant modifiable risk factors for dental implant complications. The full picture is more nuanced than a simple contraindication, though. Understanding the underlying mechanisms, the degree of risk, and the steps you can actually take will put you in a much stronger position to achieve a successful outcome.

How smoking affects osseointegration

Osseointegration — the biological process by which bone grows onto and bonds with the implant surface — is the foundation of long-term implant success. Smoking undermines this process through several well-characterised mechanisms.

Reduced blood supply

Nicotine is a potent vasoconstrictor. It narrows blood vessels and significantly reduces blood flow to peripheral tissues, including the jawbone. In practical terms:

- Fewer nutrients and less oxygen reach the healing bone surrounding the implant
- Immune cells responsible for infection control and healing arrive in reduced numbers
- Metabolic waste products from the healing process are cleared less efficiently
- The biological environment around the implant is measurably compromised

Reduced vascularity is one of the primary ways smoking elevates implant failure rates, and it's worth understanding this clearly before proceeding with treatment.

Impaired bone cell function

Research consistently shows that smoking has a direct, detrimental effect on the cells responsible for bone formation and remodelling:

- Osteoblasts (bone-forming cells) show reduced activity and diminished numbers in smokers
- Osteoclasts (bone-resorbing cells) may become more active, shifting the biological balance toward net bone loss
- The cumulative effect is slower bone formation and potentially weaker, less reliable integration between bone and implant surface

Compromised immune response

Smoking suppresses immune function at both local and systemic levels:

- Neutrophil function — the first-line cellular defence against bacterial infection — is measurably impaired
- The inflammatory response becomes dysregulated, producing a chronic, low-grade inflammatory state that damages tissue rather than repairing it
- Wound healing is delayed throughout the body, including at the surgical site

Toxic effects on tissue

Cigarette smoke contains thousands of chemical compounds, a significant proportion of which are directly cytotoxic:

- Carbon monoxide reduces the oxygen-carrying capacity of haemoglobin
- Hydrogen cyanide interferes with cellular energy metabolism
- Heavy metals and other toxic compounds damage cell membranes and DNA integrity

These effects compound an already compromised healing environment, creating conditions that are fundamentally less favourable for osseointegration.

What the research shows

Implant failure rates

The body of evidence on smoking and implant failure is substantial and consistent across multiple study designs and populations:

- Non-smokers typically achieve implant success rates of approximately 95–98% over ten years
- Smokers achieve success rates of approximately 85–95%, with variation depending on study methodology and cigarette consumption
- The risk of early implant failure — occurring before osseointegration is complete — is substantially elevated in smokers, with the degree of elevation varying across studies. Your specialist can advise on how this population-level risk applies to your individual circumstances.
- The risk of late implant failure is also elevated, primarily because of peri-implantitis

These are population-level figures, and individual outcomes vary. Some smokers achieve successful implant treatment; some non-smokers experience failures. The trend, however, is clear, consistent, and clinically significant.

The upper jaw is more affected

Smoking appears to exert a greater negative influence on implants placed in the upper jaw (maxilla) than in the lower jaw (mandible). This is likely because the maxilla has lower bone density and depends more heavily on optimal healing conditions for reliable osseointegration.

Bone grafting success

For patients who require bone grafting prior to implant placement — which is not uncommon — smoking introduces additional compounding risks:

- Graft incorporation (the process by which graft material integrates with native bone) is impaired
- Infection rates at graft sites are higher in smokers
- Wound dehiscence — the graft site opening prematurely — occurs more frequently
- Overall graft success rates are meaningfully lower in patients who smoke

This matters particularly because smokers, who tend to experience more significant bone loss through periodontal disease, are often the very patients most likely to need grafting before implant placement.

Peri-implantitis: the long-term threat

Even after an implant has successfully integrated, smoking continues to pose a substantial ongoing risk through peri-implantitis — an inflammatory condition affecting the tissues surrounding an implant, analogous in many respects to periodontal disease around natural teeth.

What is peri-implantitis?

Peri-implantitis involves:

- Inflammation of the soft tissue surrounding the implant (presenting initially as peri-implant mucositis) - Progressive loss of the supporting bone around the implant - Eventual loosening and potential loss of the implant if the condition isn't identified and managed promptly

The smoking connection

Smokers face a significantly elevated risk of developing peri-implantitis, for reasons that are mechanistically well understood:

- The impaired immune response permits bacterial colonisation of the implant surface - Reduced blood supply compromises the body's capacity to mount an effective local defence against infection - Smokers frequently experience more aggressive bone loss around implants once peri-implantitis is established - The dysregulated inflammatory response drives greater tissue destruction - Peri-implantitis in smokers tends to be harder to treat than in non-smokers

Detection and management

Early clinical indicators of peri-implant disease include:

- Bleeding around the implant on brushing or probing - Redness and swelling of the surrounding gum tissue - Deepening of the peri-implant pocket - Radiographic evidence of bone loss - Implant mobility in more advanced cases

Regular maintenance appointments are essential for early detection and timely intervention. At Collins Street Specialist Centre, our periodontists monitor implant health closely at each visit and intervene promptly when clinical or radiographic signs of concern appear.

Smoking cessation and implant success

The good news

The most clinically important point in this discussion: the negative effects of smoking on implant success are largely reversible with cessation. Research shows that former smokers who have stopped for a sufficient period before implant placement achieve outcomes that approach those of never-smokers. This is genuinely encouraging, and it's the basis for our strong clinical recommendation that patients consider cessation as part of their treatment preparation.

Cessation timeline

While there's no single universally agreed timeline, current evidence and clinical recommendations support the following framework:

****Before implant surgery:**** - ****Minimum 2 weeks:**** Some studies show measurable benefit even with this relatively short cessation period, as improvements in blood flow begin within days of stopping - ****Ideal 4–8 weeks:**** At least one month allows more substantial recovery of blood flow, immune function, and tissue healing capacity - ****Longer is better:**** The longer the cessation period before surgery, the greater the restoration of healing potential

****After implant surgery:**** - ****Minimum 8 weeks:**** Avoiding smoking throughout the critical osseointegration period gives the implant the best possible biological environment for successful

integration - ****Ideally permanently:**** The benefits of cessation extend well beyond implant healing — to periodontal health, general systemic health, and cancer risk reduction

Even reduction helps

Complete cessation is the optimal outcome, but reducing cigarette consumption also appears to meaningfully reduce risk. Heavy smokers (20 or more cigarettes per day) face higher implant failure rates than light smokers (fewer than 10 per day). Where complete cessation isn't immediately achievable, reduction before and after surgery still confers a real clinical benefit and is worth pursuing.

E-cigarettes and vaping

The evidence on e-cigarettes and dental implant outcomes is still developing. While e-cigarettes eliminate many of the combustion-derived toxins in conventional cigarettes, they still deliver nicotine — the primary vasoconstrictor responsible for reduced blood flow. Early research suggests vaping may be less harmful to implant healing than smoking, but it isn't without risk. The nicotine content still impairs vascularity and may compromise healing.

Current clinical guidance treats nicotine from any delivery source — smoking, vaping, or nicotine replacement therapy — as a potential risk factor for implant healing, while acknowledging that smoking is likely more harmful than vaping because of the additional burden of toxic combustion products.

Our approach: honest guidance, not judgement

At Collins Street Specialist Centre, we don't refuse implant treatment to patients who smoke. Our approach is grounded in providing honest, evidence-based information and working collaboratively with patients to optimise their outcomes — whatever their starting point.

What we do

- ****Provide clear, accurate information**** about the elevated risks associated with smoking, so you can make a genuinely informed decision about proceeding with treatment - ****Strongly encourage cessation**** before and after surgery, and offer to coordinate with your GP or cessation support services where appropriate - ****Optimise treatment planning**** — taking into account implant selection, surgical technique, and healing protocols that may help mitigate smoking-related risks - ****Monitor closely**** throughout the healing phase and at long-term maintenance appointments - ****Manage complications promptly**** should they arise

What we don't do

- We don't judge patients for smoking - We don't decline treatment on the basis of smoking status alone - We don't minimise the risks or suggest they are less significant than the evidence indicates - We don't guarantee outcomes for any patient — smoker or non-smoker — because implant success is influenced by a range of biological and behavioural factors

Risk mitigation strategies

For patients who currently smoke or have recently ceased, our clinicians may consider a range of strategies to support optimal outcomes:

- Extended healing periods before loading implants with functional forces - More conservative surgical approaches where clinically appropriate - Closer monitoring during the osseointegration phase - More frequent long-term maintenance appointments - Strong emphasis on meticulous oral hygiene to reduce peri-implantitis risk - Peri-operative systemic antibiotics in selected cases

Beyond implants: smoking and overall oral health

The impact of smoking on dental health extends well beyond implant outcomes:

- **Periodontal disease:** Smokers are significantly more susceptible to severe gum disease and respond more poorly to periodontal treatment - **Oral cancer:** Smoking is the single greatest modifiable risk factor for oral cancer - **Delayed healing:** All dental surgical procedures heal more slowly in patients who smoke - **Aesthetic impact:** Tooth and soft tissue staining, halitosis, and premature ageing of the oral tissues are consistent findings - **Dry mouth:** Smoking reduces salivary flow, which increases caries risk and affects mucosal health - **Taste changes:** Smoking progressively dulls taste perception

Cessation is one of the most impactful decisions a patient can make for their oral health — and their broader systemic health — at any stage of life.

Resources for quitting

A range of evidence-based support options are available for patients considering cessation:

- **Quitline:** 13 78 48 — free telephone counselling and ongoing support - **My QuitBuddy app:** A free smartphone application providing evidence-based cessation support - **Your GP:** Can prescribe nicotine replacement therapy (patches, gum, lozenges) or pharmacological support (varenicline, bupropion), both of which significantly improve quit rates compared with unassisted attempts - **Pharmacist:** Can provide over-the-counter nicotine replacement products and practical cessation advice

We encourage patients to discuss cessation support with their GP as part of their overall treatment preparation, and we're happy to assist with this coordination where helpful.

Making the best decision for you

If you smoke and are considering dental implants, approach this decision with clear information and realistic expectations:

1. Have an honest conversation with your implant clinician about the specific risks as they apply to your clinical situation
2. Consider cessation or reduction before treatment — even a few weeks of abstinence produces measurable physiological benefit
3. Commit to avoiding smoking throughout the critical post-surgical healing period
4. Maintain excellent oral hygiene as a fundamental component of long-term implant health
5. Attend all scheduled follow-up and maintenance appointments without exception
6. Understand that while the risks are real and clinically significant, many patients who smoke do achieve successful implant outcomes with appropriate planning and support

To discuss your implant options in a straightforward, evidence-based consultation — call Collins Street Specialist Centre on (03) 9654 5705. Our team at 220 Collins Street, Melbourne CBD, is here to help you understand your options fully and achieve the best possible outcome for your dental health.

Frequently asked questions

Can smokers get dental implants: Yes, smoking is not an absolute contraindication

Does Collins Street Specialist Centre refuse smokers for implants: No, smoking status alone does not disqualify patients

Is smoking a risk factor for dental implant failure: Yes, it is one of the most significant modifiable risk factors

How much does smoking increase early implant failure risk: Approximately two to three times higher than non-smokers

What is the implant success rate for non-smokers: Approximately 95–98% over ten years

****What is the implant success rate for smokers:**** Approximately 85–95% over ten years

****Does smoking affect osseointegration:**** Yes, it measurably undermines the process

****What is osseointegration:**** The process by which bone bonds with the implant surface

****Does nicotine cause vasoconstriction:**** Yes, nicotine is a potent vasoconstrictor

****Does smoking reduce blood flow to the jawbone:**** Yes, significantly

****Does reduced blood flow affect implant healing:**** Yes, fewer nutrients and less oxygen reach healing bone

****Does smoking affect osteoblasts:**** Yes, it reduces their activity and numbers

****What are osteoblasts:**** Bone-forming cells

****Does smoking affect osteoclasts:**** Yes, it may increase their activity

****What are osteoclasts:**** Bone-resorbing cells

****Does smoking cause net bone loss around implants:**** Yes, by shifting the balance toward resorption

****Does smoking suppress immune function:**** Yes, at both local and systemic levels

****Does smoking impair neutrophil function:**** Yes, measurably

****Does smoking delay wound healing:**** Yes, throughout the body including surgical sites

****Does carbon monoxide affect implant healing:**** Yes, it reduces oxygen-carrying capacity of haemoglobin

****Does smoking cause chronic inflammation:**** Yes, a low-grade dysregulated inflammatory state

****Is the upper jaw more affected by smoking than the lower jaw:**** Yes

****Why is the upper jaw more affected by smoking:**** It has lower bone density and greater healing dependence

****Does smoking increase peri-implantitis risk:**** Yes, significantly

****What is peri-implantitis:**** Inflammatory condition causing bone loss around implants

****What is peri-implant mucositis:**** Early-stage soft tissue inflammation around an implant

****Can peri-implantitis cause implant loss:**** Yes, if not identified and managed promptly

****Is peri-implantitis harder to treat in smokers:**** Yes, it tends to be more refractory

****What is a sign of peri-implant disease:**** Bleeding around the implant on brushing or probing

****What is another sign of peri-implant disease:**** Redness and swelling of surrounding gum tissue

****What is a late sign of peri-implant disease:**** Implant mobility

****Does smoking affect bone grafting success:**** Yes, graft incorporation is impaired in smokers

****Are infection rates higher at graft sites in smokers:**** Yes

****Does wound dehiscence occur more in smokers:**** Yes, more frequently at graft sites

****Are smokers more likely to need bone grafting:**** Yes, due to greater bone loss from periodontal disease

****Can quitting smoking improve implant outcomes:**** Yes, outcomes can approach those of never-smokers

****Are the negative effects of smoking on implants reversible:**** Yes, largely reversible with cessation

****What is the minimum cessation period before implant surgery:**** At least 2 weeks shows measurable benefit

****What is the ideal cessation period before implant surgery:**** 4–8 weeks

****How long should smoking be avoided after implant surgery:**** Minimum 8 weeks

****What is the ideal post-surgery cessation goal:**** Permanent cessation

****Does reducing cigarettes help if full cessation is not possible:**** Yes, reduction still confers real clinical benefit

****Do heavy smokers have worse implant outcomes than light smokers:**** Yes

****What defines a heavy smoker in this context:**** 20 or more cigarettes per day

****What defines a light smoker in this context:**** Fewer than 10 cigarettes per day

****Does vaping affect implant healing:**** Yes, nicotine from vaping still impairs vascularity

****Is vaping safer than smoking for implant healing:**** Likely less harmful, but not risk-free

****Does vaping eliminate nicotine delivery:**** No, nicotine is still delivered

****Is nicotine replacement therapy a risk factor for implant healing:**** Yes, nicotine from any source is a potential risk

****Is the evidence on vaping and implants conclusive:**** No, the evidence base is still developing

****Does Collins Street Specialist Centre judge patients for smoking:**** No

****Does the clinic guarantee implant success for non-smokers:**** No, outcomes are never guaranteed for any patient

****Does the clinic minimise smoking risks to patients:**** No, risks are presented clearly and accurately

****Does the clinic offer to coordinate cessation support:**** Yes, with GP and cessation services

****Can extended healing periods help smokers:**** Yes, they are used to reduce loading risks

****Are more frequent maintenance appointments recommended for smokers:**** Yes

****Does meticulous oral hygiene reduce peri-implantitis risk in smokers:**** Yes

****Are peri-operative antibiotics considered for smokers:**** Yes, in selected cases

****Does smoking cause periodontal disease:**** Yes, smokers are significantly more susceptible

****Is smoking the greatest modifiable risk factor for oral cancer:**** Yes

****Does smoking cause dry mouth:**** Yes, by reducing salivary flow

****Does dry mouth increase caries risk:**** Yes

****Does smoking affect taste:**** Yes, it progressively dulls taste perception

****Does smoking cause halitosis:**** Yes

****Does smoking stain teeth and soft tissues:**** Yes

****Does smoking affect all dental surgical healing, not just implants:**** Yes, all procedures heal more slowly

****What is the Quitline number in Australia:**** 13 78 48

****Is Quitline free:**** Yes

****What is the My QuitBuddy app:**** A free smartphone cessation support application

****Can a GP prescribe medication to help quit smoking:**** Yes, including varenicline and bupropion

****Does nicotine replacement therapy improve quit rates:**** Yes, compared with unassisted attempts

****Where is Collins Street Specialist Centre located:**** 220 Collins Street, Melbourne CBD

****What is the clinic's phone number:**** (03) 9654 5705
