

One-Stage vs Two-Stage Dental Implants — What's the Difference?

Canonical: <https://directory.collinsstreetspecialistcentre.com.au/treatment-guides/one-stage-vs-two-stage-dental-implants-what-s-the-difference/>

Description:

Comparing one-stage and two-stage dental implant protocols — healing times, candidacy, bone requirements and which approach suits your case at CSSC Melbourne.

Details:

Collins Street Specialist Centre: One-Stage vs Two-Stage Dental Implants — What's the Difference?

If you're considering dental implants, you've probably come across the terms "one-stage" and "two-stage" during your research or early consultations. These refer to two distinct surgical protocols for placing implants, and understanding the difference can help you make sense of your treatment plan and feel more prepared for what's ahead.

At Collins Street Specialist Centre, our oral and maxillofacial surgeons and prosthodontists work together to determine which protocol suits each patient best. There's no single right answer — the decision depends on your bone quality, the location of the missing tooth, and what you're trying to achieve.

A quick primer: how dental implants work

A dental implant is a small titanium (or titanium alloy) post placed surgically into the jawbone to replace the root of a missing tooth. Over weeks to months, the surrounding bone grows onto and integrates with the implant surface — a biological process called osseointegration. Once the implant is firmly integrated, a connector piece (the abutment) and a crown, bridge or denture can be attached to restore function and appearance.

The biology of osseointegration is the same regardless of which protocol is used. The difference lies in the surgical technique and the sequence of steps.

The two-stage protocol (submerged technique)

The two-stage protocol is the traditional approach, originally developed by Professor Per-Ingvar Brånemark in the 1960s and refined considerably since. It remains widely used and is the benchmark against which other protocols are measured.

Stage one: implant placement

During the first procedure:

1. The gum tissue is opened with a carefully placed incision to expose the underlying bone
2. A precisely sized channel is prepared in the bone using progressively larger drills, under water cooling to protect surrounding tissue
3. The implant is screwed or tapped into the prepared site
4. A small cover screw is placed flush with the top of the implant to seal it
5. The gum tissue is sutured closed over the implant, completely covering it

The implant is now fully submerged beneath the healed gum — protected and undisturbed. This is where the name "submerged technique" comes from.

The healing period

The implant is left undisturbed while osseointegration occurs: - **Lower jaw:** typically 3–4 months - **Upper jaw:** typically 4–6 months (upper jaw bone is generally less dense, so integration takes longer)

During this time, a temporary tooth replacement — a removable partial denture or a bonded temporary tooth — can be provided for appearance and function. The key principle throughout this phase is that the implant should not bear biting forces, which could disrupt bone integration.

Stage two: uncovering and abutment connection

Once sufficient healing has occurred:

1. A second, minor surgical procedure reopens the gum tissue over the implant 2. The cover screw is removed 3. A healing abutment — a small metal collar that protrudes through the gum — is connected to the implant 4. The gum tissue heals around the healing abutment over 2–4 weeks, forming a natural-looking cuff of soft tissue

Once the gum has matured around the healing abutment, impressions or digital scans are taken and the final crown (or other restoration) is fabricated and fitted.

Why choose the two-stage protocol

- **Decades of evidence:** Long-term research consistently supports excellent success rates with this approach - **Protected healing environment:** The submerged implant is shielded from oral bacteria and mechanical forces during the critical integration period - **Better suited to complex cases:** Particularly where bone grafting is performed at the same time — the sealed environment supports graft healing without exposure to the oral cavity - **Controlled soft tissue outcomes:** The staged approach allows careful management of the gum tissue architecture around the implant

What to be aware of

- Two surgical procedures are required, though the second is comparatively minor - The overall treatment timeline is longer — typically 6–9 months from placement to final tooth - You'll wear a temporary tooth replacement throughout the healing period

The one-stage protocol (non-submerged technique)

The one-stage protocol removes the need for a second surgical procedure. Rather than burying the implant beneath the gum, a component is left protruding through the gum tissue from the outset.

The procedure

1. The gum tissue is opened to expose the underlying bone 2. The implant site is prepared and the implant placed — in the same way as the two-stage approach 3. Instead of a flush cover screw, a healing abutment or a one-piece implant with an integrated transmucosal component is connected, extending through the gum from day one 4. The gum tissue is sutured around the protruding component

A metal healing cap is visible above the gum line while osseointegration proceeds in the bone below.

The healing period

The same osseointegration period applies — typically 3–6 months depending on the jaw and bone quality. The implant simply remains non-submerged throughout. Once healing is complete, impressions or digital scans can be taken and the final restoration made, without any second surgery to uncover the

implant.

Why choose the one-stage protocol

- **One surgical procedure:** No second-stage surgery, which reduces treatment time, recovery and cost - **Marginally shorter total treatment timeline** - **Less soft tissue manipulation:** Fewer incisions and suturing episodes across the whole course of treatment - **Continuous gum adaptation:** The soft tissue heals and matures around the transmucosal component in an uninterrupted process

What to be aware of

- **Primary stability matters:** The implant must achieve sufficient firmness in the bone at placement to safely remain non-submerged during healing - **Oral hygiene is critical:** The transmucosal component is exposed to oral bacteria throughout healing, so consistent plaque control is essential - **Not ideal for all grafting scenarios:** When significant bone grafting is performed at the same time, the submerged approach is generally preferred to protect the graft material - **Risk of inadvertent loading:** A protruding component can be unintentionally stressed by the tongue, food or a temporary prosthesis during healing

What about immediate loading?

Immediate loading — sometimes marketed as "teeth in a day" — is a further refinement where a temporary crown, bridge or denture is attached to the implant at the same appointment as placement, or within 48 hours.

This is distinct from the one-stage protocol. One-stage placement means the healing abutment protrudes through the gum, but the implant isn't functionally loaded with a tooth during healing. Immediate loading means a temporary tooth is placed that the patient can actually use, with certain restrictions.

Immediate loading requires: - Very firm primary stability at the time of placement, typically measured by insertion torque - Good bone quality and quantity - Carefully controlled bite forces on the temporary restoration during healing - A suitable clinical scenario — front teeth in the aesthetic zone, or full-arch cases such as All-on-4, are common applications

Immediate loading can deliver excellent aesthetic and functional outcomes, particularly for front teeth where a visible gap is socially significant. It isn't appropriate for every situation, and your surgeon will advise whether it's viable based on what's found at the time of surgery.

How does your surgeon decide?

The choice between protocols comes down to several interrelated clinical factors.

Bone quality and quantity

Good bone quality makes either protocol appropriate — one-stage is often favoured for its simplicity. Compromised bone generally calls for the two-stage approach, particularly where grafting is needed, because the submerged environment protects both the implant and the graft during early healing.

Very dense bone, commonly found in the front of the lower jaw, provides excellent primary stability and makes one-stage or even immediate loading feasible. Softer bone, common in the back of the upper jaw, generally favours two-stage placement for more predictable integration.

Need for bone grafting

When significant bone augmentation is carried out at the same time as implant placement — guided bone regeneration, sinus lift procedures or block grafts — the two-stage submerged approach is usually preferred. It protects the graft from bacterial contamination during the most vulnerable phase of healing.

Minor grafting, such as small amounts of bone substitute placed around an exposed implant thread, can often be managed with a one-stage approach.

Implant location

For front teeth, one-stage placement or an immediate provisional restoration may be preferred to avoid a visible gap during healing. More complex cases may still benefit from the two-stage approach for optimal soft tissue and aesthetic management.

For back teeth, both protocols perform well. One-stage placement is increasingly common for straightforward posterior implants.

For full-arch cases, immediate loading protocols such as All-on-4 use a form of one-stage placement with immediate temporary teeth.

Soft tissue considerations

When gum grafting is planned alongside implant placement, the surgical staging may be adjusted. Some surgeons prefer two-stage placement to separate the implant healing phase from the soft tissue grafting, allowing each to be managed with appropriate focus.

Patient factors

****Oral hygiene:**** Consistently good oral hygiene supports one-stage placement. Patients with less reliable plaque control may benefit from the protected healing environment of the two-stage approach.

****Smoking:**** Smokers face higher implant failure rates with either protocol. The submerged two-stage approach may offer some additional protection during healing.

****Bruxism:**** Patients who grind or clench their teeth are generally better suited to two-stage placement, reducing the risk of premature loading forces acting on the healing implant.

****Medical conditions:**** Certain systemic conditions affecting healing — poorly controlled diabetes, immunosuppression and bisphosphonate therapy among them — may favour the more conservative two-stage approach.

Surgeon experience and preference

Both protocols produce excellent outcomes in experienced hands. Individual surgeons may have a considered preference based on their training and accumulated clinical experience. At Collins Street Specialist Centre, our surgeons are experienced with both approaches and select the protocol that best fits each patient's clinical situation and treatment goals.

Success rates

Both protocols show excellent results in the published literature. Modern dental implants, regardless of the surgical approach, achieve survival rates of approximately 95–98% over 10 years when placed by experienced practitioners in appropriately selected patients.

The factors that most influence long-term success are: - Careful patient selection and thorough treatment planning - Precise surgical technique - Adequate, undisturbed healing time before loading - Consistent oral hygiene and ongoing professional maintenance - Proactive management of risk factors, including smoking cessation and diabetes control - Quality of the final prosthetic restoration

The Collins Street Specialist Centre approach

At Collins Street Specialist Centre, implant treatment is a genuinely collaborative process between our oral and maxillofacial surgeons, who place the implants, and our prosthodontists, who design and fabricate the replacement teeth. This integrated specialist team approach means:

- Each implant is positioned in the optimal location for the planned restoration - The surgical protocol is chosen according to the specific clinical requirements of the case - Complex cases involving bone or soft tissue grafting receive coordinated, specialist-level care throughout - The final restoration achieves good aesthetics, function and long-term durability

We use advanced three-dimensional imaging (CBCT scans) and digital treatment planning to map implant position precisely before surgery. In many cases, surgical guides translate the digital plan into the operating field with greater accuracy.

Making your decision

The choice of surgical protocol is worth discussing in detail with your treatment team — though it needn't be a source of anxiety. Both approaches are well-established, evidence-based and effective in the right clinical context. The most important considerations are:

1. Choosing practitioners with appropriate specialist training and experience
2. Investing in thorough, individualised treatment planning
3. Selecting the protocol best suited to your specific clinical situation
4. Following post-operative instructions carefully
5. Committing to long-term professional maintenance and review

****To explore your implant options, call Collins Street Specialist Centre on (03) 9654 5705**** to arrange a consultation. Our specialist team at 220 Collins Street, Melbourne CBD, will walk you through the process in detail and recommend the approach most likely to deliver a good long-term result for your circumstances.

Frequently asked questions

****What is a dental implant:**** A titanium post surgically placed into the jawbone

****What does a dental implant replace:**** The root of a missing tooth

****What material are dental implants made from:**** Titanium or titanium alloy

****What is osseointegration:**** The biological process of bone growing onto the implant surface

****How long does osseointegration take in the lower jaw:**** Typically 3–4 months

****How long does osseointegration take in the upper jaw:**** Typically 4–6 months

****Why does the upper jaw take longer to integrate:**** Upper jaw bone is generally less dense

****What is a one-stage dental implant protocol:**** A technique where no second surgery is needed to uncover the implant

****What is a two-stage dental implant protocol:**** A technique involving two separate surgical procedures

****What is another name for the two-stage protocol:**** The submerged technique

****What is another name for the one-stage protocol:**** The non-submerged technique

****Who originally developed the two-stage implant protocol:**** Professor Per-Ingvar Brånemark

****When was the two-stage protocol originally developed:**** In the 1960s

****Is the two-stage protocol still widely used:**** Yes

****Does the two-stage protocol require a second surgery:**** Yes

****Is the second surgery in a two-stage protocol major:**** No, it is comparatively minor

****What is placed at the end of stage one in a two-stage procedure:**** A small cover screw

****Is the implant visible after stage one of a two-stage procedure:**** No, it is submerged beneath the gum

****What is a healing abutment:**** A small metal collar that protrudes through the gum tissue

****What is the purpose of a healing abutment:**** To allow gum tissue to form a natural cuff around the implant

****How long does gum tissue take to heal around a healing abutment:**** 2–4 weeks

****Does the one-stage protocol require a second surgical procedure:**** No

****Is the implant visible above the gum in a one-stage procedure:**** Yes, a healing cap is visible

****Does osseointegration still occur with the one-stage protocol:**** Yes

****Is osseointegration the same for both protocols:**** Yes, the biology is identical

****What is the total treatment timeline for a two-stage protocol:**** Typically 6–9 months from placement to final tooth

****Is the one-stage protocol faster overall:**** Yes, marginally shorter total treatment timeline

****Does the one-stage protocol reduce surgical burden:**** Yes, fewer surgeries required

****What is immediate loading:**** Placing a temporary tooth at the same appointment as implant placement

****Is immediate loading the same as one-stage implant placement:**** No, they are distinct protocols

****What is "teeth in a day":** A marketing term for immediate loading protocols

****Does immediate loading require excellent primary stability:**** Yes

****What is primary stability:**** How firmly the implant is seated in bone at placement

****Is immediate loading suitable for every patient:**** No, only specific clinical situations

****What is a common application for immediate loading:**** Front teeth in the aesthetic zone

****What full-arch protocol uses immediate loading:**** All-on-4

****Is good bone quality required for immediate loading:**** Yes

****Is one protocol universally better than the other:**** No, the right choice depends on individual circumstances

****What factor most influences protocol choice:**** Bone quality and quantity

****Is the two-stage protocol preferred when bone grafting is needed:**** Yes

****Is one-stage placement suitable for minor bone grafting:**** Yes, in many cases

****Is one-stage placement preferred for front teeth:**** Often yes, to avoid a visible gap during healing

****Does the two-stage protocol protect graft material better:**** Yes, the submerged environment shields the graft

****Is two-stage placement preferred for soft bone:**** Yes

****Is one-stage placement suitable for very dense bone:**** Yes

****Does smoking affect implant success rates:**** Yes, smoking elevates implant failure rates

Does the two-stage approach offer added protection for smokers: Possibly, due to the submerged healing environment

Are bruxism patients better suited to one protocol: Yes, two-stage is generally preferred for bruxism

Why is two-stage preferred for bruxism patients: Reduces risk of premature loading forces during healing

Does poor oral hygiene favour one protocol: Yes, two-stage offers a more protected healing environment

Can patients with diabetes receive dental implants: Yes, but poorly controlled diabetes may favour two-stage placement

Does bisphosphonate therapy affect protocol choice: Yes, it may favour the more conservative two-stage approach

What imaging technology is used at Collins Street Specialist Centre: CBCT (cone beam computed tomography) scans

Does Collins Street Specialist Centre use digital treatment planning: Yes

Are surgical guides used during implant placement: Yes, in many cases

Who places the implants at Collins Street Specialist Centre: Oral and maxillofacial surgeons

Who designs the replacement teeth at Collins Street Specialist Centre: Prosthodontists

Is implant treatment a collaborative process at Collins Street Specialist Centre: Yes

What is the 10-year survival rate for dental implants: Approximately 95–98%

Does protocol choice significantly affect long-term success rates: No, both show excellent outcomes

What most significantly influences implant long-term success: Careful patient selection and treatment planning

Does oral hygiene affect implant success: Yes

Does professional maintenance affect implant success: Yes, ongoing maintenance is critical

Is smoking cessation recommended before implant treatment: Yes

What temporary tooth option is available during two-stage healing: A removable partial denture

Can a bonded temporary tooth be used during healing: Yes

Should an implant bear biting forces during osseointegration: No

What is the risk of a protruding component in one-stage placement: Inadvertent loading by tongue, food or temporary prosthesis

Is bacterial exposure greater with one-stage placement: Yes, the transmucosal component is exposed throughout healing

Is diligent oral hygiene especially important with one-stage placement: Yes

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

What is the phone number for Collins Street Specialist Centre: (03) 9654 5705
